Dialogues@RU
A Journal of Undergraduate Research

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Acknowledgements

Much effort has gone into the production of this edition of Dialogues@RU magazine, and there are many for whom my thanks are warmly deserved. In the first place are not only the nineteen students whose fine work is published here, but also the many others who submitted their papers. I wish space had not been restricted, as then we would have been able to publish them all. I am extremely impressed with the outstanding level of scholarship exhibited in all the papers that were submitted.

Helping me read through these papers and reach our decision as to which ones to publish, I am indebted to Elizabeth Madden-Zibman, Erica Magnus, Letizia Schmid, and Brook Stanton, who all teach 201, and whose ability to carefully and fairly judge these papers was of enormous help. They made for a most convivial and intellectually enlightening team with whom to work.

My thanks also extend to all the other 201 professors for their dedication and extremely effective teaching. And most especially I would like to thank those teachers of the students whose work is published here; namely, Debbie Borie-Holtz, Brad Farberman, Elizabeth Gardner, John Holliday, Elizabeth Madden-Zibman, Erica Magnus, Jeff Robbins, Letizia Schmid, Joanne Sills, Laura Smith, Brook Stanton, and Karen Thompson.

Recognition and great appreciation must also be directed to Jeris Cassel, Rutgers Research and Instructional Services librarian, who has helped to seamlessly integrate the 201 courses with the Rutgers libraries in terms of teaching students about effective research skills. Not only this, but this past academic year we introduced a Poster Fair into the 201 syllabus, so that those students who wished to, designed a poster so as to develop a visual representation of their research topic. Jeris helped me to organize this Poster Fair, and it was met with much success, not least of all that many students commented on the fact that by creating their Poster, and being able to speak about it in an articulate and succinct way, they were better equipped to write their final research paper.

In addition, I would like to thank Lauren Foster for her fresh, innovative and incredibly intelligent cover design. Working with the theme of “dialogues” in her mind, Lauren cleverly went out to take photographs of anything which seemed to suggest the idea of a conversation. And she came up with the brilliant idea of the yellow telephone, with or without the laptop. My thanks also extend to Alessandra Sperling, who took on the challenging task of the layout of this magazine, and who did so with great care and
attention to detail. And finally, I would like to thank Charlie Piparo and his team at Mariano Press, who inspired confidence right from the start, and who did such a super job printing this magazine.

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Introduction
Tisha Bender

My hope is that, just as the yellow telephone on the front cover, exquisitely photographed by Lauren Foster, has a rich and beckoning quality, as if you must pick it up and hear who is at the other end and enter into a fascinating and meaningful conversation, so too will the student research papers contained within this magazine have the same allure. The Dialogues@RU Magazine, founded by Michael Cripps in 2002, is a wonderful literary journal, right up there with the likes of Granta, only this is non-fiction. But instead of saying what this is not – in other words, it is not fiction – I would like to say what it in fact is, which is that it is a most remarkable collection of outstanding, sophisticated and professional 201 student research papers from students who dedicated a semester of investigation into what truly fascinated them. They probably encountered surprises and maybe even obstacles along the way – the path to true discovery is seldom a straight line – but unafraid of these complexities and willing to enter a dialogue (hence the name of this magazine) on many levels with the authors of the works they read, with their teachers, with their peers, and in their own heads, they made rich and rewarding discoveries, and wrote up their findings in profound and intriguing ways. I believe it is safe to say that each of the students whose work is published here made an outstanding contribution, not only to this magazine, but also within the field of their research, and it is my hope that for many of them, this research is the kernel of what will eventually become a sustained fascination for them and an even deeper enquiry which might be published in journals specific to their discipline.

More than fifty 201 students submitted their paper for consideration to this magazine, and all were of an exemplary standard, so it was a hard task to narrow it down to the nineteen papers that were selected here. But with the splendid help of those on the Dialogues committee – Elizabeth Madden-Zibman, Erica Magnus, Letizia Schmid, and Brook Stanton – whose perceptivity, patience, and preparedness to read mounds of papers throughout this long, hot summer, we were able to make our choice. We read each paper twice, and were able to democratically agree on the papers selected here. The criteria we used were many, and included the fact that the paper:

- Could serve as a strong research paper model for future 201 students
- Had convincing content and general intelligence
• Demonstrated a depth of research, having used multiple scholarly sources in meaningful and connective ways

• Was not biased, but had counter-arguments and complexity so that real analysis and interpretation, based on textual evidence, was apparent

Although the papers selected for inclusion were all outstanding, the one which best meets all the above criteria, and for which the student wins an award, is Alissa Aboff, for her exceptional work, “Protecting the Rights of the Intersex Newborn.” Alissa was a student of John Abrams. The other teachers whose students’ work has been chosen for publication include Debbie Borie-Holtz, Brad Farberman, Elizabeth Gardner, John Holliday, Elizabeth Madden-Zibman, Erica Magnus, Jeff Robbins, Letizia Schmid, Joanne Sills, Laura Smith, Brook Stanton, Karen Thompson, and me.

The papers, though emanating from a variety of 201 classes of different topics, are laid out in this magazine according to some main themes and subject areas. The themes we identified are Ethics, Medicine, Science, Music, Food Ethics, Contemporary Social Issues, and Global Concerns. You will see that these papers connect in fascinating ways. We hope you will enjoy reading this magazine, and indeed learn from it, as much as we did, and that you will be similarly impressed with the profound level of research and writing that these students have accomplished.
Protecting the Rights of the Intersex Newborn
Alissa Aboff

Abstract
When a newborn’s genitals are neither fully male nor fully female, parents have the option of authorizing genital-normalizing surgery on their intersex child. The surgery removes and rearranges genital tissue in order to construct genitalia that better match the child’s assigned gender. Advocates of the traditional protocol for the treatment of intersex children hold that the surgery ensures normal psychosexual development. However, in the last decade intersex advocates have begun to question the legality of genital-normalizing surgery in infancy, suggesting that surgery interferes with the child’s right to autonomy. Because genital-normalizing surgery may affect fertility and the capacity for sexual sensation, ethicists hold that there should be a moratorium on surgery. Because surgery often conflicts with the child’s long-term interests, parents should not have a legal right to authorize surgery on their intersex child.

Introduction
After the birth of a newborn, parents hardly expect to be told by doctors that they need to wait before giving their child a name. When the gender of a newborn is not certain, parents cannot immediately be sure whether their child is a Sarah or a Sam, a John or a Julie, an Oliver or an Olivia. With most newborns, doctors can usually tell the gender of the child by a simple and cursory glance, and parents can name their child without hesitation or doubt. In about one out of two thousand births, however, the genitalia of the newborn are ambiguous – doctors are unable to definitively classify the child as male or female (Lareau 129). The child falls temporarily into a third, often stigmatized category: intersex.

Typically, doctors perform a series of tests before assigning the child a gender. But such tests are often inconclusive, and test results often contradict one another. For example, a steroid evaluation may classify the child as male yet a chromosome analysis may render the child female. The Intersex Society of North America holds that all intersex newborns should be assigned a gender even if test results are inconclusive (Chase 4). It is not the gender assignment of an intersex child that modern ethicists and intersex advocates find unsound. Rather, ethicists call into question whether parents have the right to authorize genital-normalizing surgery on the infant. Gender-normalizing surgery “corrects” the appearance of the ambiguous genitalia by re-sculpting the genitals to match the child’s assigned gender. In most cases, the surgery is not medically necessary for the intersex newborn and serves a highly cosmetic purpose (Ehrenreich 72). Some form of surgery has been the dominant protocol when treating intersex newborns for the past century. Only within the last decade have bioethicists truly considered the
moral implications of the surgery and whether the surgery interferes with the rights of the intersex child. Alyssa Connell Lareau’s piece “Who decides? Genital-normalizing surgery on intersexed infants” forms a framework to the discussion of whether parents have the right to authorize non-medically necessary genital-normalizing surgery on their intersex infant. Lareau, a lawyer who has written several articles regarding the rights of intersex newborns, contends that parents are incompetent of making informed decisions that the medical community should push for a moratorium.

The question of who has the right to authorize genital-normalizing surgery forms an intricate net of social, legal, and ethical issues. Because so many biological factors affect whether intersex individuals will come to perceive themselves as male or female, it is often difficult to determine the eventual gender of the intersex person in infancy. Due to the fact the surgery is irreversible, serves a cosmetic purpose, and removes tissue that the child may one day want, parents should not have the right to authorize genital-normalizing surgery on their intersex newborn.

**Defining the Intersex Condition**

An intersex person is traditionally defined as any individual with some type of sexual dimorphism at the chromosomal, gonadal, or hormonal levels (Blackless 161). However, some counter this traditional definition, describing it as too broad. Leonard Sax, an American psychologist focused on gender differences, presents a more narrow definition of intersex and includes only those who present outward signs and symptoms at birth (Sax 174). He does not include Klinefelter syndrome or Turner syndrome in his definition of intersex. Individuals with Klinefelter syndrome are genetically 47, XXY and live as male; individuals with Turner syndrome are genetically 45, XO and live as female (NOVA). They do not, however, typically display ambiguous genitalia at birth. Individuals with Klinefelter syndrome may develop small breasts, but their genitalia at birth are clearly defined as male. Although individuals with these syndromes would be considered intersex by Blackless’ definition (they deviate from the traditional male or female dichotomy), they are not considered intersex by Sax’s definition (they do not display ambiguous genitalia at birth). Neither definition is necessarily more correct. But because this essay focuses on the implications of genital-normalizing surgery in infancy, this essay will adopt Sax’s definition of intersexuality when referring to individuals with an intersex condition.

A common intersex condition in which the external genitalia are ambiguous is congenital adrenal hyperplasia (CAH). Individuals with CAH are genetically 46, XX (the
karyotype of a normal female) but because of neonatal androgen exposure are born with virilized genitalia (Sloane 152). The term “virilized” in this context refers to the development of male characteristics in the genitals. Instead of an internal vaginal opening, individuals with CAH may have an elongated clitoris with an external vaginal opening or may have fused labia. A similar condition that instead affects genetic males is Androgen Insensitivity syndrome (AIS), also referred to Testicular-Feminization syndrome. AIS is a condition in which males with a 46, XY karyotype have testes in the abdomen and external female genitalia. The external genitalia during development are insensitive to androgens, the principal male hormones, and thus the penis does not form or is severely underdeveloped.

Even more complicated intersex conditions arise when the intersex person has a mosaic karyotype. Katrina Karkazis, a researcher at the Stanford Center for Biomedical Ethics, describes a case in her book “Fixing Sex” in which a child was born with a karyotype of 45,XO/46,XY (90). The child was diagnosed with mixed gonadal dysgenesis. Newborns with this condition have both male and female physical traits; the child may have an enlarged clitoris with an external urethral opening, a vagina, fallopian tubes, and internal testes (Sohval 155). Related to this diagnosis is perhaps the most complicated of intersex conditions. Known as “true hermaphroditism,” this condition describes individuals who have both ovarian and testicular tissue (Kim 1013). Cases of mixed gonadal dysgenesis and true hermaphroditism are often so complex that a team of doctors and specialists fail to reach a consensus as to whether the child should be assigned male or female.

**Three Modern Models of Treatment**

Currently, three protocols exist for the treatment of intersex infants. The first protocol calls for immediate surgery and hormonal intervention, citing a need for the child’s body to conform to the traditional male-female dichotomy (Money 51). The approach was widely accepted for the second half of the twentieth century – experts argued that the child would suffer severe psychological trauma if surgery was not performed to “correct” the intersex condition. The protocol further emphasized a need to minimize the information given to parents about the condition. The Canadian Medical Association Journal in 1996 awarded second prize in a medical student essay contest to a student who wrote that doctors had an ethical duty to lie to parents of patients with androgen insensitivity syndrome about the true nature of the patient’s condition (Anne Fausto-Sterling 299). Lying to parents – or at least not revealing all information about the
child’s condition – is not only condoned but encouraged through this model. Within the last ten years ethicists began to truly reconsider this approach.

Completing diverging from this traditional model, the Intersex Society of North America argues that there should be a complete moratorium on surgery that is not medically necessary for the intersex newborn (Chase 2). Lareau similarly favors a moratorium, and she questions the reasoning behind the traditional approach and holds that the secrecy that surrounds genital-normalizing surgery will inevitably cause feelings of guilt and shame in parents of intersex children (136). The need to correct the intersex condition only perpetuates the stigma against any condition and deviates from the socially-established norms of gender. As aforementioned, the majority of advocates for a moratorium on genital-normalizing surgery do not recommend that the child should not be assigned a gender. Rather, they argue that surgery that is not necessary on medical grounds interferes with the rights of intersex newborn.

The last approach and the most widely accepted protocol today is known as the “middle ground” approach. As its name suggests, this protocol serves as an intermediate between the traditional model espoused in the mid- to late-twentieth century and the recent approach that calls for a complete moratorium of genital-normalizing surgery in infancy. This protocol advocates fully informing parents about the child’s condition and holds that the parents have the right to ultimately decide whether they want to pursue a surgical option. Supporters of this approach believe that the traditional model leaves defers too much authority to doctors treating the intersex child yet a complete moratorium interferes with the rights of the parents to decide treatment for their child (Greenberg 90). They believe that parents who are fully educated about the advantages and potential risks of surgery are in the best position to decide appropriate treatment for the intersex child.

Though this last model may appease lawmakers and ethicists, a closer examination of the middle ground approach shows that it has major flaws on both ethical and legal levels. Opponents of the middle ground approach question whether parents are truly in the best position to decide what is best for their child. Holding to the principals of autonomy and self-determination, supporters of a moratorium believe that only the intersex individual can decide surgery for him or herself. Although the middle ground approach appears to be a fitting compromise, it fails to hold water under further critical analysis. Neither the traditional model nor the middle ground approach is an ethically sound model for the treatment of intersex newborns.
Refuting the Traditional Model

During the mid-twentieth century, it was widely believed that a child’s gender identity was predominantly the result of rearing (Karkazis 50). This view was perpetuated by John Money, a leading psychologist who claimed that a child is born as a blank slate and gender neutral. If the intersex child is reared as a girl, he argued, the child will come to perceive herself as a girl; if the intersex child is reared as a boy, the child will come to perceive himself as a boy. Crucial to psychosexual development and gender identity were genitalia that matched the child’s assigned gender. In an article published in *Pediatrics* Money argued, “psychosexual identity may contradict chromosomal, gonadal, or hormonal sex. It more generally agrees with the external genital morphology and the assigned sex.” (Money 51). The surgery, according to the traditional model, simply allows children to develop smoothly into a defined gender.

However, case studies and scientific research suggest that the theory that a child’s gender is independent of biological factors is incorrect. In a famous case study known as the John/Joan case, a normal 46, XY male had his penis severely burned in infancy. Due to the prevailing mindset that a child is gender neutral at birth, psychologists recommended that the boy be raised as a female. The boy’s name was changed from John to Joan and the boy underwent genital-normalizing surgery. The surgery was initially thought of as a success; however, in 1997 a researcher found that “Joan” was now living as a male and was taking testosterone supplements (Lev 171). The failure of the John/Joan case lends credence to Lareau’s argument against the traditional approach: because gender identity is not the result of rearing alone, genital-normalizing surgery in infancy does not necessarily ensure normal psychosexual development.

Other studies confirm the theory that gender identity is a result of both rearing and biological factors. A study published in 2004 suggests prenatal hormone exposure plays a significant role in gender identity. The study found that women with CAH (a condition in which genetic females develop virilized genitalia as a result of neonatal androgen disorder) reported weaker identification as females than did women without CAH (Hines 78). Though the women with CAH were raised as girls, they still did not come to fully perceive themselves as female. This study supports the idea that gender identity is not independent of biological factors.

The justification that surgery provides a means for healthy psychosexual development is irreducibly flawed because gender identity is a result of more than just rearing. Sculpting an intersex child’s genitalia as female to match a female gender
assignment does not guarantee that the child will come to perceive herself as a girl. Because so many factors influence gender development, the gender of an intersex child often cannot be certain at birth. If doctors cannot be sure of the gender of the intersex child, performing an irreversible surgery on the child has the possibility of forever trapping the child in the wrong gender.

**Lies and Deception**

Despite the fact that gender is not nearly as plastic as once believed, proponents of the traditional approach argue that revealing the truth about an intersex child’s condition would undoubtedly cause the parents and intersex person deep psychological trauma. Withholding information from parents, according to this approach, is necessary in order to ensure that parents raise the child in a defined gender (Greenberg 88). However, such deception and lies do not prevent feelings of shame in the intersex child. Rather, deceiving the parents about the child’s true condition tends to augment feelings of shame. It gives the parents and the intersex child the perception that the child’s condition is “so grotesque, so pathetic, that any medical procedure aimed at normalizing [the genitalia] is morally justified” (Dreger 75). The view that ambiguous genitalia must be corrected perpetuates the stigma against intersex conditions. The secrecy that surrounds genital-normalizing surgery through the traditional approach makes the intersex child’s condition seem so abnormal that even medical professionals cannot openly discuss it with parents. J. David Hester in “Intersex and the Rhetorics of healing” describes that when adults born with ambiguous genitalia describe the genital-normalizing process, they express “shame, powerlessness, isolation, and humiliation – much of it due to a lack of forthright discussion between doctors and physicians” (61). Secrecy does not protect the child from stigmatization, but furthers feelings of shame.

Hester presents a first-hand account of a man who underwent genital-normalizing surgery at a young age. The man describes, “I remember my parents privately telling my teacher about the surgery and encouraging the teacher to lie to the class and say I was having surgery on my arm … obviously, the full truth would have been appropriate, but it sent a signal to me that it was something of which to be ashamed” (61). Intersex children who are forced to undergo surgery in secrecy often grow up with a sense that something is wrong yet have no one to talk to about the true nature of their condition. The deception encouraged by the traditional approach leads to confusion, frustration, and shame in both the intersex person and his or her parents. Lying to patients should not be condoned on any level, especially with an issue as sensitive as genital-normalizing surgery.
The “Middle Ground” Approach: A Viable Option?

The middle ground approach fundamentally differs from the traditional approach in that it does not endorse secrecy and deception and calls for parents to be completely informed before deciding whether surgery is an appropriate option. Supporters of the middle ground approach argue that “parents who are fully educated about the risks and benefits of the different protocols are in the best position to assess what is in their child’s best interest” (Greenberg 90). Proponents of this protocol claim that as long as parents are completely informed about the full nature of their child’s condition, parents legally have the right to make medical decisions for their child. Laura Hermer, a professor of bioethics at the University of Texas, acknowledges that genital-normalizing surgery carries certain risks but holds that once parents are informed of the potential consequences of the surgery, the appropriate course of treatment for the intersex child is up to the parents’ discretion (Hermer 256). This approach, some argue, protects both the rights of the parents and the interests of the child.

Though this protocol appears to be a suitable compromise, there are certain critical and insurmountable flaws in this approach. It makes the assumption that parents are best able to objectively determine what is in their child’s best interest. It is certainly reasonable to believe that parents who authorize surgery on their intersex infant are acting with the right intentions. But because parents are closest to the child and are most immediately affected by the child’s condition, they may in fact be in the worst position to consider what is best for the child in the long run. Lareau notes that parents are not given unchecked decision-making power. She states when parents are “making decisions regarding infant medical treatment in other contexts, courts have established criteria for overriding parental decisions...the state may challenge and set aside decisions that are deemed not in the child's best interest” (144). Though those opposed to a moratorium argue parents should have the right to decide treatment for their child, the courts have established legal procedures for determining whether a parental decision may violate the rights of the child.

In cases where the patient is in some way unable to consent to surgery, the decision-making power is deferred to another party, typically a close relative of the patient. In order for parents to legally consent to surgery for the patient, three criteria must be satisfied: the parents must be competent, the parents must fully informed, and parents must make the decision on a voluntary basis (Ford 484). These criteria are meant to protect against imprudent and hasty decision-making by parents. Though proponents of
the middle ground approach argue that the criteria are satisfied as long as doctors educate parents about the consequences and implications of surgery, evidence suggests that none of the above three conditions are truly satisfied. The subsequent three sections reveal that when considered from a practical standpoint, the middle ground approach fails to satisfy the above three conditions necessary for legal informed consent.

**Are Parents Truly Informed?**

Given the nature of genital-normalizing surgery and the lack of statistical evidence that addresses surgical outcomes, it is unlikely that parents fully understand the consequences of surgery. While doctors may be able to fully describe the medical details of the child’s condition and the surgical process, parents often remain uninformed about non-surgical options. In one study of parents’ experiences, “only one out of ten parents had sought information outside the medical setting” (Wickstrom and Zeiler 369). This suggests that the majority of patients do not truly consider other treatments and may not reach out to other parents of intersex children. No matter how much parents are informed about the potential risks of surgery, if they are not exposed to other options parents cannot be considered truly informed.

Because so few studies address the outcomes of genital-normalizing surgery in infancy, doctors are unable to provide parents with hard data pertaining to the potential consequences of surgery. Hermer, an advocate of the middle ground approach, contends that because the data do not conclusively show that surgery does more harm than good, parents should retain the right authorize surgery on their child (Hermer 267). However, the fact that there is lack of data refutes the claim that parents have the right to authorize genital-normalizing surgery. Parents cannot make informed decisions if provided with such minimal information. Genital-normalizing surgery is experimental in nature: few reports demonstrate that surgery is better than non-surgical options.

The lack of data often causes parents to make decisions they later regret. In several interviews, parents voice that they wish they had known more about what genital-normalizing surgery entailed before authorizing the surgery on their intersex child. One parent relates, “At the time [surgery] seemed like the right thing to do, but I should have done more research then. By now I’ve talked to people who’ve had hypospadias repair, and they’ve gone through hell. The body has ways of undoing these surgeries. He’s developed a leak . . . If I knew then what I know now . . .” (Wickstrom and Zeiler 369). Because so few parents seek information outside the medical setting, they are often left unaware of the potential consequences about surgery. If parents are truly informed, such
consequences should come as no surprise to parents. Unfortunately, because genital-normalizing surgery is experimental in nature, even doctors cannot be sure of the likelihood of post-surgical complications. With such a dearth of information, parents cannot be considered capable of making fully informed decisions.

Are Parents Truly Competent?

A critical component to Lareau’s argument against the middle ground approach is her contention that the parents are too emotionally charged to be considered competent of giving informed consent. Lareau argues that the middle ground approach does not fully protect the well being of the intersex child because “even if parents possess full knowledge of the arguments for and against genital surgery on infants, they can be in a fragile emotional state that may interfere with their ability to consider the infant's best interests” (133). Because parents are blinded by their own emotions, they may not be in an appropriate position to judge whether surgery is the best option.

From a psychological standpoint, initial feelings of shock and frustration may overcome rational decision-making. Social psychologists propose that when a child’s genitals are ambiguous, parents find themselves unable to identify with the intersex child (Wickstrom and Zeiler 361). Genitals are brought into the foreground and parents are often so shocked by the genitalia that they immediately look for a way to correct the seemingly foreign body part. Parents find their previously unquestioned view of gender suddenly threatened – with the birth of an intersex child, the belief that a person can only be male or female no longer seems valid. Because of the sudden threat to a deeply engrained view, parents are often quick to choose surgery to quickly normalize their child and to reaffirm their traditional view of the male/female gender dichotomy.

The competency of parents is further complicated by the fact that parents naturally see themselves as the protectors of their children. Norm-challenging bodies carry a certain stigma, and parent may instinctually believe that correcting the stigmatized body part will best protect the child. However, parents’ instinctual desire to protect their children may leave parents unable to truly weigh the benefits and risks of surgery. Lareau points to a study in which women were asked to imagine that they had been born with a large clitoris and men were asked to imagine that they were born with a micropenis. The majority answered that they would rather be left with their atypical genitalia than be surgically altered. However, Lareau notes, “the answers changed when subjects were asked what they would do for their children in the same situation” (143). This blatant double-standard suggests that parents may not be in the best position to objectively
determine what is best for their child. Because of the complicated emotions associated with the birth of an intersex child, parents may not be competent of making life-altering decisions for their child.

Do Parents Decide on a Truly Voluntary Basis?

Physician rhetoric may further render parents unable to make an independent, informed decision. Doctors and surgeons are quick to pathologize the intersex condition: they perceive the ambiguous genitalia as a medical abnormality. However, in most cases the child’s physical health is not affected by the intersex condition. David Hester in “Intersex and Informed Consent: How Physician Rhetoric Constrains Choice” suggests that doctors give parents the impression that their child’s condition is a medical emergency that should be quickly corrected. Hester explains that “at no point has it been demonstrated that the gender indicators are a cause of either medical or psychosocial ‘disease’… the underlying conditions are treated as incidental to the overwhelming ‘need’ to surgically alter the child to conform to norms of genital appearance. It is the rhetoric employed by the physician that pathologizes the genitalia, not the condition behind the ambiguity” (38). By telling parents that their child will be “normal” after the condition is “cured” through surgery, physicians are suggesting to parents that the child’s condition is not normal or socially acceptable. Physician rhetoric that pathologizes the intersex condition may sway parents in favor of surgery even before parents are informed about the nature of their child’s condition. Because doctors often view the child’s condition as a “disease,” physician rhetoric tends to be more persuasive than informative.

Doctors may further influence parental decision-making by withholding crucial information from parents. Physicians may not inform parents of non-surgical options, or they may downplay non-surgical options by suggesting that only surgery can rectify the child’s condition. Intersex advocate Alice Domurat Dreger in “Intersex and Human Rights” suggests that many do not inform parents about well-respected advocacy groups or tell parents that surgery is currently experimental in nature. Dreger states that “many physicians feel this sort of information is either not relevant or too political to reveal.” Yet it seems to me – from conversation I’ve had with parents and with persons born with atypical anatomies – that this information is exquisitely relevant to making informed decisions” (77). By withholding crucial information, doctors severely constrain parental choice – even though other options exist, parents may not be encouraged to explore other options. Because doctors often so not encourage parents to fully explore other options, it
is questionable whether parents opt for genital-normalizing surgery on a truly independent basis.

**Conclusion**

Parents undoubtedly want what is best for their child, but the nature of the intersex condition often renders parents unable to make informed, competent, and independent decisions. Though physicians do not operate with mal intent when recommending genital-normalizing surgery, surgical methods of treatment have the potential to severely rob the intersex child of certain fundamental rights. Because genital-normalizing surgery is irreversible, cosmetic in nature, and risks a child’s fertility and capacity for sexual sensation, the only morally and legally permissible option is to postpone surgery until the intersex individuals themselves can decide whether surgery is an appropriate option. As Lareau suggests, the middle ground approach should not be accepted in the legal and medical communities as a viable compromise. Only a moratorium would ensure that the intersex child has a role in the decision-making process.

Because of the stigmatization surrounding the intersex condition, parents may feel anxious and uncertain at the thought of raising an intersex child. But through discussion with professionals and with other parents of intersex children, parents can address any concerns and discover a new way of looking at their child’s condition. Though the child’s condition may be distressing at first, “if given time parents can move past the initial fear and discomfort to see another reality: that they have given birth to a beautiful baby” (Karkazis 183). Surgery tends to treat the child’s genitalia as a disease that must be cured. But if the intersex child’s condition is not treated as a disease, it will not be perceived as a disease. With a moratorium on surgery and open, forthright discussion, the child’s ambiguous genitalia will slowly fade into the background, and parents can shift their attention to the joy and warmth accompanied by the birth of any newborn child.

**Bibliography**


The Intricate Debate: Embryonic Stem Cell Research:
Medical Ethics Versus Christian Ethics and the Political Role
Sarah Gallagher

Introduction

The controversy over embryonic stem cell research has avid proponents and detractors on both the medical and religious fronts. There are various worldviews on this topic, coming from those within the medical world, whose ethics lead them in support of embryonic stem cell research, as well as those coming from the Christian religion, which lead them in opposition. At the heart of this controversy is the argument of when the embryo becomes a human. When it comes to science and medicine, there seems to be no exact and agreed definition for when this transformation into human life occurs, instead there are a few common theories. The medical viewpoint has presented “timelines” for this process involving the evolution of various physical features; whereas, the Christian belief is that of which an embryo becomes a human when he or she receives a soul. However, recently there has been controversy within Christian ethics, due to different views on the timing of ensoulment. Traditional Christians, valuing their sacred church and Bible teachings, believe that ensoulment occurs at conception; therefore they consider the embryo a human from the very beginning. The more liberal Christians, unlike the traditional, believe that the embryo receives it’s soul at a certain point during pregnancy, therefore claiming that there are ethical justifications for experimenting on embryos. Adding to this conflict is the political viewpoint. There are two views in particular that have had an impact on governmental policy in both the past and the future, those of George W. Bush and Barak Obama, respectively I will be exploring the reasons behind Bush’s opposition towards funding projects involving the study of embryonic stem cell research, along with the reasoning behind Obama’s support on the topic. Do their views rely on medical ethics or religious ethics? Bush, who objects to the research, based his decision on personal religious ethics; whereas, Obama based his decision to support the research on nothing other than scientific facts that might eventually lead to benefitting many Americans. Through my research, and mainly with the help of theoretical framework, I have broken down each viewpoint and have inferred that it is plausible to conclude that embryonic stem cell research will eventually be proved ethical.

Embryonic stem cell research, although according to some religious beliefs is deemed unethical, is in fact socially ethical. By socially ethical I mean that eventually majority of the society will support this research. This idea is supported by Pinker’s
theory, Law of Conservation of Morality. As mentioned previously, within Christianity there has been a replacement of moral beliefs, where Christians in the past have been seen as one of the major protesters against destructive research on embryos. This recent shift in beliefs, that newer Christians are not against embryonic stem cell research under certain circumstances, suggest that as time goes on the number of people who are against the research will slowly decrease and eventually begin to believe otherwise. If a group of the most passionate opponents against this research have adjusted their views, then why not the rest of society? Research in the medical field is very beneficial in that it can lead us to various understandings and cures of diseases, and if the majority of society can come to the conclusion when an embryo becomes a human, then embryonic stem cell research might not be so controversial. However, there will always be people who disagree with the majority of people. That is where another question comes into play, what should government’s role be? When it comes to the political world, Obama’s approach at making laws based on knowledge is more beneficial due to the sole reason that there are various views and opinions out there and not everyone will be pleased if based on one specific religious or moral belief. That is why Patrick Devlin’s theory of Legal Moralism is significant. The law suggests that whoever is in charge at the time will determine the society’s morality and therefore enforce society’s collective morality. Bush based his decision off of his religious/moral belief that is not the best scenario for this specific situation because throughout American society there are various views on the topic. Obama’s decision, based on knowledge in this case, is the necessary approach. CBS News polling helps support Obama’s ideas by stating in the article, “Obama Ends Stem Cell Research Ban,” that when asked in 2007, sixty five percent of people answered that they support embryonic stem cell research. Therefore he not only “determines the society’s morality” by a knowledgeable approach, but by doing so was also able to please the majority of society and therefore is “determining the society’s morality” by already using the majority of societies moral beliefs. With that being said, I claim that embryonic stem cell research, if not now, will eventually be socially ethical.

Theoretical Framework

Embryonic stem cell research is a very complex, multidimensional topic but it can be easily broken down with the help of a theoretical framework. When defining the reasoning for the split between traditional Christians and liberal Christians, The Law of Conservation of Morality will be useful. The law, introduced in Harvard psychologist, Steven Pinker’s article, “Moral Instinct”, which appeared in Times Magazine, is a brief
explanation of how what is morally accepted changes throughout time and how new behaviors are replacing old behaviors when it comes to moral acceptance, and that is exactly what happens within Christianity. “In fact there seems to be a law of conservation of moralization, so that as old behaviors are taken out of the moralized column, new ones are added to it” (Pinker). When it comes to the topic of embryonic stem cell research, the traditional Christian belief that the research is absolutely wrong because of ensoulment at conception is replaced, in the minds’ of some, by the newer idea that embryonic stem cell research can be justified under certain circumstances because ensoulment occurs later in the pregnancy. The traditional Christian belief is not seen as unethical now, but rather the fact that is important is that as society progressed there have been Christians who have replaced this moral belief with a new one.

When defining politics role in this research, Legal Moralism, coined by the famous legal moralist Patrick Devlin, is a theory that comes into play.

Legal moralism is the view that the law can legitimately be used to prohibit behaviors that conflict with society’s collective moral judgments even when those behaviors do not result in physical or psychological harm to others. According to this view, a person’s freedom can legitimately be restricted simply because it conflicts with society’s collective morality; thus, legal moralism implies that it is permissible for the state to use its coercive power to enforce society’s collective morality (Himma). The theory, appearing in the “Internet Encyclopedia of Philosophy,” suggests that whoever is in charge at the time will have the power to decide whether to ban funding of embryonic stem cell research and instead of determining this by using the majority of society’s belief they will determine this by using their own beliefs. Therefore, this implies that it is permissible for government to enforce society’s collective morality.

Bush and Obama will be two important leaders when attempting to comprehend this role. As stated previously Bush bans the research and Obama lifts the ban on the research, both using their power to determine what is socially acceptable despite what society’s collective moral judgment leans towards.

**Important Definition**

To understand the debate over embryonic stem cell research, it is important to understand what exactly embryonic stem cells are, how they are obtained, and how they can benefit humans. James Bryant gives us insight on this topic in his book,
Fundamentals of the Stem Cell Debate: The Scientific, Religious, Ethical, and Political Issues:

Stem cells are undifferentiated cells found in the embryos and the later life stages of animals, including humans. They are recognized by their dualistic nature: they either can expand their numbers (self-renew) while remaining undifferentiated or can differentiate and contribute to the development on repair of tissues of the body. (Bryant 10)

For embryonic stem cell research, specifically in this paper, it is most important to understand that with these abilities the cells may be able to lead to the treatment or cure of various diseases. Every individual started out as a one-celled animal which then developed into a multi-celled human embryo, also known as a blastocyst, which forms about five to six days after conception. However, the embryo has the ability to split for up to fourteen days after being conceived, which means for the first fourteen days of pregnancy it is unknown whether there will be a single embryo or multiple embryos (Bryant 8). Scientists think that these cells are believed to be able to heal various life threatening diseases. People suffering from cardiovascular disease, autoimmune disease, type 1 and type 2 diabetes, osteoporosis, certain cancers, Alzheimer's disease, and Parkinson’s disease, may be cured from these stem cells. It is believed that about 100 million people in the United States might be able to benefit from the use of these particular stem cells (Goldstein 98).

The Controversy within Christian Ethics

The recent change in Christian ethics helps prove my conclusion that embryonic stem cell research will eventually be considered socially ethical. Christianity, traditionally is known to be a religion strongly against embryonic stem cell research because of their belief that the embryo becomes a human with ensoulment, and this ensoulment occurs at conception. Their sacred text, The Bible, defends this position by informing us of God’s role in this process. In the Old Testament, verse five of the Call of Jeremiah reads, “Before I formed you in the womb I knew you, and before you were born I consecrated you; I appointed you a prophet to the nations” (Jeremiah 1:5). Followers of Christianity interpret this verse to mean that the embryo is a human from the very beginning. The verse suggests that God intends for every embryo/fetus/child to be in their mother’s womb, he not only creates each embryo but he has a different plan for each as well. Therefore, to kill an embryo, whether it be for research purposes or not, whom God has given a soul to with the intentions of giving them a life and a purpose, would be
considered homicide. This idea is supported by David Albert Jones in his article, “The Appeal to the Christian Tradition in the Debate about Embryonic Stem Cell Research,” when characterizing destroying the embryo, “not only as a sin, but as ‘murder’ (phoneuseis) that is, as the deliberate and unjustified killing of a human being (cf. Matthew 19.18, Mark 10.19)” (Jones 5).

However, there are Christians who do not necessarily believe that embryonic stem cell research is completely unethical, I call these people liberal Christians. According to Dave Albert Jones in his article, he believes that these liberal Christians have evolved in the nineteenth century (Jones 3). As previously stated, the Law of Conservation of Morality helps explain this shift in Christian beliefs; the law suggests that as society advances, old morals are thrown out the window and replaced with new ones (Pinker). This is relevant because the liberal Christians believe in certain justifications when it comes to embryonic stem cell research, in some cases deeming it ethical. Like traditional Christians, they believe the embryo becomes a human when it receives it’s soul, however they believe that this ensoulment is delayed. According to Mark Johnson’s article, “Delayed Hominization,” Liberal Christians are following the views of Christian theologians. They claim that ensoulment does not occur until around fourteen days after conception because of the cell’s ability of twinning or cleavage, which is basically a separation. So at the early zygote stage, it is not definite that it will become a single organism. Johnson then goes on to explain how this is religious and not just biology by stating, “God’s infusion of the rational soul requires it to be the form of a single, determined body” (Johnson 745). Therefore meaning that ensoulment cannot occur until the single body is formed, which is again about fourteen days following conception. This belief system, adopted by the liberal Christians, emphasizes how morals are being replaced even in a religion as extreme as Christianity and therefore implies that society will follow in their footsteps and eventually support embryonic stem cell research, if not fully, then with certain justifications.

The Various Opinions of Medical Ethics

On the opposite end of the spectrum lies medical ethics, which leave embryologists and scientists in favor of embryonic stem cell research. Where the Christian view on an embryo’s shift into humanity relies on ensoulment, the medical view bases its argument on a physical “timeline.” However there are various opinions when it comes to this “timeline.” Norman M. Ford, author of When Did I Begin, notes that when it comes down to it, it is a known fact in science that the human life begins at conception, when
the sperm and the egg meet a human life begins to develop (Ford 104). If this is scientifically proven, then why is the medical world in favor of embryonic stem cell research? Ford goes on to explain how although the human life does begin at conception, the life is not necessarily considered a valuable human life. This theory is supported by Lawrence S.B. Goldstein and Oyvind Baune in their works. Goldstein is a biomedical scientist who is interested in curing diseases. He believes, like many other scientists, that embryonic stem cell research is necessary to find the cures for various diseases, and therefore favors the research. In his article, “Political Issues in the Stem Cell Debate: The View from California” in the book Fundamentals of the Stem Cell Debate: The Scientific, Religious, Ethical and Political Issues, Goldstein portrays his thoughts on the medical timeline, “The blastocyst is a hollow ball of cells that develops a few days after fertilization and has no organs such as a heart or nervous system” (Goldstein 99). Goldstein then goes on to explain how something with this make up of no organs, which are necessary for life, cannot be considered a valuable human life just yet. In Oyvind Baune’s, “The Moral Status of Human Embryos with Special Regards to Stem Cell Research and Therapy,” he outlines the various medical beliefs to the question when the embryo is considered a valued human life. One view mentions that the implantation of the embryo in the uterus is not complete until day twelve, leaving it no moral status until then (Baune 4). Another view would be that the embryo is not a human until the first visual signs of organ formation, which occurs at about day fourteen and continues until approximately day fifty, which is when the main organs and structures of the embryo are present. Some scientist argue that an embryo does not hold moral status until the fourteenth day when there are signs of organs, and there are others who believe that it gains status when organ development is complete (Baune 3). Another conflict is the debate that a human must be an individual and that the cells, until day fourteen, have the ability to divide or split and therefore generate twins (Baune 8). That being said, there are scientists who believe that embryos have no moral status until they can be considered an “individual.” The first signs of brain activity are measured after that fifty day period of when the organs are fully developed. “By definition the embryo period ends eight weeks/two months (56-60 days) after fertilization, at which time the embryo is 23-26mm in size” (Baune 3). Baune mentions that this is the belief of majority of scientists, after the point in which brain activity starts, the embryo has complete moral status, and therefore deserves the rights to be protected. Although there are many different medical views on when an embryo can be considered a valuable human being with moral status.
according to features, clearly this view greatly differs from the Christian view of ensoulment. However, because their view is based on fact, fortunately for the medical world, as long as they continue to experiment and improve health with the use embryonic stem cells, their work is expected to gain support.

The Political Role

When it comes to the political role in embryonic stem cell research, the big question is: “Do government laws and/or funding depend on religious and moral beliefs or on scientific knowledge? And if it does depend or religious and moral beliefs, then whose?” Legal Moralism is an important concept when explaining the role of political ethics in embryonic stem cell research. This theory, proposed by Devlin, proves that political ethics basically control what goes on in society. Legal Moralism is the theory implying that laws may be used to either require or prohibit certain behaviors based on whether or not society’s collective moral belief is that the behavior is moral or immoral (Devlin). However, the theory states that it is permissible for the government to enforce society’s morality, meaning that whoever is in charge will determine, based on their own beliefs, whether embryonic stem cell research is ethical or not and should be funded or not.

President Bush was opposed to embryonic stem cell research, based on personal beliefs, and therefore banned all federal funding for the research under his presidency. When it comes to Bush, Carter O. Snead supports the concept of Legal Moralism in his article, “Public Bioethics and the Bush Presidency.” This article explores the large impact that former U.S. President George W. Bush had on bioethics. During his administration, Bush was opposed to the idea of embryonic stem cell research and banned all federal funding after 2001. He justified his bioethics policy by stating, “One particular grounding good [is]: respect for the intrinsic and fundamental equality of all human beings” (Snead 869). He also often repeated that the purpose of government is to protect the weak from the strong; in this case the embryo would clearly be the weak. Bush believed in the equality of all human beings, despite the age, size, strength, etc. He supported biomedical research, but he strived to find the line between “profound respect for the fundamental equality of every human being and vigorous support for biomedical research and the healing arts” (Snead 874). Whether embryonic stem cell research is morally permissible depends on the status of the embryo, when it is destroyed. Bush holds a high respect for the embryo, and believes others should as well, despite its lack of “capacity or characteristics.” Making these decisions based on his own moral and religious beliefs was a large mistake. Bush held back America’s opportunity of advancement in the field.
Although he banned all funding, however he did allow research to continue on the twenty-one stem cell lines that had been created before his ban on the issue, since technically they were able to renew forever. Unfortunately for these scientists, it was difficult to make any sort of progress with these preexisting stem cell lines. Dr. Lorenz Studer, a stem cell biologist, states in CBS article, Debrief: The Embryonic Stem Cell Debate:

The problem, says Studer, is that every time cell divides, ‘there is a chance it accumulates defects – it’s not always a perfect copy of itself.’ So the 21 lines are eventually of less and less use. In addition, the lines made before 2001 were not created with the benefit of the advances of the last few years, and are not as well designed for laboratory use as more recent lines. (Montopoll)

This article goes on to show us that Bush did want the research to benefit Americans but his limits had a major effect on the future of our country when it comes to embryonic stem cell research and the benefits that could come out of it. Although he has strong beliefs on the subject, Bush is basing his decision to ban research on his beliefs, which will not work in America.

Barack Obama, unlike Bush, relied on knowledge to make his decision rather than moral or religious beliefs. The CBS news article called “Obama Ends Stem Cell Research Ban,” is a record of President Obama’s lifting of the Bush administration’s limits on human embryonic stem cell research before a large audience in support. Obama states that he will “‘make scientific decisions based on facts, not ideology’” (CBS). He understands that embryonic stem cell research is strongly opposed by some because of the destruction of the human embryo in the process, but that is not the point of view of most Americans. Obama states that majority of Americans want to pursue this research because of the major health benefits that can come out of it. According to a CBS News Polling, “In 2007, the last time CBS News asked the question, sixty-five percent said they approved compared to twenty-five percent who disapproved. The number of those who approved had gone up steadily since the 2004 when fifty percent approved” (CBS). This is where again, Legal Moralism comes in. Obama in charge is able to determine society’s collective morality. Using knowledge, which is less controversial than religion, he agrees with the majority of Americans and therefore lifts the ban on embryonic stem cell research. Not only does his choice reflect the majority of Americans, but it is a great relief to scientists, who believe that only good can come out of this. CBS article, “Obama
Ends Stem Cell Research Ban,” quotes Early Show medical contributor, Dr. Holly Phillips:

‘Many scientists for the last eight years have been complaining that they're spending more time trying to find funding for their research than actually doing their research. So for them this will really have a profound effect,’ Phillips said. ‘Certainly on an international level in medicine we're so excited about this research and the potential for healing that it has. So I think less red tape will have a profound effect’ (CBS).

Phillips, along with many other scientists owes a big thanks to Barack Obama and his lift of the ban on embryonic stem cell research. With this support, scientist are making up for lost time and attempting to make progress in this field, in hopes to save the lives of many Americans. If scientists continue to make advancements and now that political ethics support this research, it is more likely that embryonic stem cell research will become socially ethical.

Conclusion

After much research and analysis, I conclude that embryonic stem cell research, if not now, will eventually be considered socially ethical. Stem cell research, possibly being able to cure multiple diseases and ultimately saving lives, is supported by many Americans. As mentioned, Pinker’s, Law of Conservation of Morality explains the shift of belief in Christian ethics, and therefore foreshadows the possibility of a larger population of people trading in their opposing beliefs for supporting roles when it comes to embryonic stem cell research. Devlin’s, Legal Moralism, with much analysis, suggests that when a controversial ethical issue such as embryonic stem cell research is tackled by government, it is in the government’s best interest to approach the situation with knowledge rather than morals. When passing or rejecting funding on such a debatable issue, it is more likely that the majority of Americans share support on universal knowledge based ideas rather than morals because of the various views in the world today. Therefore, if approached correctly, embryonic stem cell research is very likely to become socially acceptable in America.

Bibliography


The Exploration of Humanism through Prejudice: 19th Century Freak Shows and the Images of the “Human” Body
Andrea Poppiti

Posing a Question

Throughout the modern era, the definition of “the human” has been explored and defined countless times in response to an ever-changing society, constant political and social upheavals, and the classification of morals. Philosophers, psychologists, and scholars alike have contemplated the idea of the human in an effort to gain a more comprehensive understanding of the mind in a social, personal, and cultural context. While multiple historical events and social studies can provide evidence for an argument regarding human nature, one could further pursue a definition of the human being by exploring its presumable antithesis: the physically abject and abnormal individual. The term “freak” was used throughout the 19th century to describe these individuals: people with “physical, mental, or behavioral anomalies, both alleged and real” (Freak Show 2).

Despite its negative connotation and offensive implication, the present use of the word “freak” will ensure historical accuracy and realistic accounts of circus-life. The American freak show, which reached the height of its popularity during the 19th century, showcased those with physical abnormalities and intriguing anomalies in order to attract a crowd of paying customers. While seen as a sick and twisted business venture by our modern society, the 19th century freak show industry thrived during an age of constant change. By exploring the perception of circus freaks during the heyday of American freak shows in the 19th century, one may question whether it is possible to interpret the norms of humanness and understand the implications of social prejudice from a post-modern perspective. Can a definition of “the human” be determined through understanding the 19th century disabled body and comprehending the reasoning behind the fascination with circus freaks and their classification in American society? What is the reasoning and moral motivation explaining the 19th century American obsession with freak shows, and why has this obsession changed in recent years?

Two Theories of Stigma and Prejudice

The incorporation of Erving Goffman’s Stigma Theory, Sam McFarland’s explanation of the roots of generalized prejudice, and other closely related theoretical texts will provide evidence surrounding human judgment and its effects on perception and social classification. Erving Goffman, a deceased sociologist who had a strong interest in routine social interactions, developed the Stigma Theory, which explores “the
social process in which particular human traits are deemed not only different, but deviant” (Thomson 31), in 1963 (“Sociology Professor”). The theory on stigmatization discusses the social process that accounts for disability in a societal context. Social comparison and stigmatization, according to Rosemarie Garland Thomson’s *Extraordinary Bodies*, “create a shared, socially maintained and determined conception of a normal individual…sculpted by a social group attempting to define its own character and boundaries” (31). Theory regarding social judgment proves relevant to the freak show craze of the 19th century through its strong correlation to disability and aberrations, which helped distinguish freaks during this time period. As Americans searched for the abnormal qualities of freaks that separated them from the “standard” human, stigmatization became prevalent. Separation and maltreatment ensued, creating judgment and prejudice in a society that depended heavily upon physical appearance, wealth, and social status. In his recent theory piece published in the *Political Psychology* journal, Sam McFarland, a professor of psychology at Vanderbilt University who specializes in human rights and authoritarianism (“Sam McFarland”), discusses the origins of generalized social prejudice and judgment. His establishment of the underlying correlations between personality, society, and prejudice allows readers to determine the predisposition of certain social groups to judge others and details of the steps taken when forming judgments. With the aid of McFarland’s theory, the topic of freak shows can be explored through the identification of Americans’ tendencies to judge and isolate those who are deemed abnormal. By commenting on the influences of lifestyle, personality, empathy, and social dominance on generalized prejudice, McFarland’s argument surrounding judgment reflects upon values and ethics found in 19th century society that will explain the obsession with freak shows and contribute to the establishment of a more precise definition of “the human”.

**Toward an Explanation**

Such evidence has led to the consideration that circus freaks were not considered to be human at all; instead, they were extensively judged and isolated from society based on their physical and mental abnormalities. Since they were regarded as sub-humans, one may hypothesize that freaks could potentially define the norms of humanness through the conclusion that they were rejected from the societal definition of normalcy. In non-contemporary America, this definition of the “normal” human may have reflected upon a conservative, conforming individual who represented society’s values. Social judgment and stigmatization by 19th century Americans bolstered the distinct separation between
freaks and normal humans and further classified the freak as a deviant and inferior member of society. The 19th century regard of the disabled, which promoted prejudice against the abnormal, provides a resource that allows for the interpretation of human nature and a greater understanding of social judgment through the exploration of prevalent human qualities and inclinations toward discrimination. Though such exploration is limited to a non-contemporary society, its implications regarding “the human” helped to standardize social groups in a manner that has roots in modern society as well. By defining a human based on what it is considered not to be, one will find that the goal of obtaining a true explanation of “the human” can be more easily achieved.

The Emergence of the Freak

In her book *Sideshow U.S.A.*, Rachel Adams defines the freak show as combining “the drama and costuming of the theater with the more sober conventions of the scientific exhibit” (Adams 29). Such shows provided the opportunity to view “people with alleged physical, mental, or behavioral differences at circuses, fairs, carnivals, and other amusement ventures” (“Social Construction” 23). With the expansion of cities and of public recreation from the 1840s until the 1940s, freak shows were a prevalent and accepted part of American life (Gerber 17). While they were at one time depicted as “educational or scientific exhibits” (“Social Construction” 25), freak shows were profitable business ventures that incorporated human disability to provide entertainment and collect revenue (23). Though considered an immoral practice in today’s society, the social and historical context of the 19th century provided a suitable environment for freak shows to flourish. According to Professor David Wall of the Batley School of Art and Design, “the institutionalization of the freak show emerged just as the social experience of carnival was being eliminated and ‘criminal penitentiaries and insane asylums…were becoming an integral part of the American reform culture’” (527). As the American obsession with abnormal and “crazy” beings grew through the creation of insane asylums, other societal and political changes revolutionized the way Americans viewed freaks. The recent adoption of democracy caused a major social upheaval that defined class distinctions and “set the stage for a new social hierarchy based on ability” (Thomson 64). As this new social hierarchy required the formation of social classes, upper class individuals wished to maintain their newly acquired status and power by establishing distinct boundaries that separated the classes. To successfully enforce a definitive separation in a simplistic manner, powerful individuals defined the American classes by appearance (64). The “idealized” American, said to be “masculine, white,
nondisabled, sexually unambiguous, and middle class” (64), provided the definition of an upper class, respectable American citizen. Since freaks did not satisfy the image of the idealized American, immediate judgment and social rejection followed during the establishment of social hierarchies. In his theoretical piece, Sam McFarland stresses the connection between prejudice and group authority. He states that “prejudice, particularly racism, results from a dominant group’s desire to maintain its privileged position and access to resources” (McFarland 454). The dominant group’s demand for power can be regarded as the “social dominance orientation,” which supports the idea that a society’s high-class will “dominate and be superior to out-groups” (McFarland 456). The desire for social dominance and the establishment of a new social order led to the classification of freaks as inferior to others solely based on appearance. As upper class individuals were able to control the social hierarchy and establish their own methods of class distinction, those who did not resemble these individuals were immediately viewed as subordinate (Thomson 63). Erving Goffman’s Stigma Theory, in which distinctions are made among people, reinforces that the process of stigmatization allows for the dominant group to establish its “idealized self-description as neutral, normal, legitimate, and identifiable by denigrating the characteristics of less powerful groups of those considered alien” (31). The dominant group of white and wealthy males, therefore, created a social hierarchy predominantly determined by “physical disability, deformity, and anomaly” (32). The group of freaks, which included “‘little people’, ‘giants’, ‘hairy people’, ‘human skeletons’, ‘armless and legless wonders’, ‘pinheads’, ‘fat people’, ‘albinos’, ‘Siamese twins’, ‘people with extra limbs’, ‘half men/half women’, ‘people with skin disorders’, ‘tattooed people’, and ‘anatomical wonders’” (“Social Construction” 24) obviously did not fit the description of the idealized body, and its regard in an appearance-selective society suffered greatly. The 19th century freak show’s cultural importance reflected upon the fact that it “dramatized the era’s physical and social hierarchy by spotlighting bodily stigmata that could be choreographed as an absolute contrast to ‘normal’ American embodiment and authenticated as corporeal truth” (Thomson 63).

Why People Seek the Carnival Freak

As the 19th century social hierarchy dictated that the freak be regarded as the opposite of the “normal” American, human curiosity and insecurity led to the freak show’s popularity. While one would expect that only high-class citizens attended freak shows, in actuality, many Americans, especially immigrants, the urban working class, and less prosperous rural people enjoyed attending freak shows as a means of “reassuring
those whose bodies and costuming did not match the fully enfranchised and indubitably American ideal” (Thomson 65) of their normalcy. The recent establishment of a new social hierarchy based on ability and power led to an identity crisis during the 19th century, as Americans faced anxiety and feelings of inferiority when attempting to determine their new roles in society. The freak soothed “the onlookers’ self-doubt by appearing as their antithesis” (65) as a means of improving a “normal” individual’s feeling of self-worth. The prejudice established against freaks, therefore, resulted from the new social hierarchy that allowed the average American to feel like he or she was a worthy and capable citizen. Freak shows provided the “opportunity to formulate the self in terms of what it was not” (59) and to fix “the mute freak as a figure of otherness upon which the spectators could displace anxieties and uncertainties about their own identities” (61). Though freak shows offered entertainment and an interesting spectacle, the human need to feel “normal” fueled the fascination with “otherness” and freaks. The institution of the freak show successfully normalized society by “establishing standards for segregating the deviant from the normal” (Adams 15). Average, insecure Americans were comforted by the sense of normalcy they felt after attending a freak show. According to anthropologist Robert Murphy’s theory on disability, entitled The Body Silent, the disabled body provides a means for people to be reassured by what they are not:

The disabled other absorbs disavowed elements of this cultural self, becoming an icon of all human vulnerability and enabling the ‘American Ideal’ to appear as master of both destiny and self. At once familiarly human but definitively other, the disabled figure in cultural discourse assures the rest of the citizenry of who they are not. (41)

To feel such normalcy and the satisfaction of fulfilling the American ideal, audience members had to establish harsh judgment and prejudice against freaks in an attempt to separate themselves from the freak performers. Social prejudice, states McFarland, is a “function of social identity maintenance”, and fueled by “a sense of group position” (454). The human desire to remain in a group and be considered “normal”, therefore, inspires the prejudice that separated people from freaks.

In spite of this theory, challenges posed by further research provide evidence that seemingly contradicts such a presumption on social identity maintenance. Data confirms that in reality, while freaks “reassured audiences of their commonality, at the same time the extraordinary body symbolized a potential for individual freedom denied by cultural pressures towards standardization” (Thomson 68). As society was swiftly changing in the
19th century, the tendency to conform became “the American way” (68) and culture “increasingly standardized individuals through a range of institutions” (68). Consequently, Americans secretly longed for the opportunity to be unique individuals, and could only achieve such by living vicariously through circus freaks in an almost envious fashion. In summary, “the spectator enthusiastically invested his dime in the freak show not only to confirm his own superiority, but also to safely focus an identificatory longing upon these creatures who embodied freedom’s elusive and threatening promise of not being like everybody else” (69). Through Thomson’s exploration of Americans’ regard towards freaks, a new perspective on the freak performers as well as the audience members can be found. The strange balance between the outward desire to be seen as normal and the inner longing to be an individual provides surprising insight into the inner-conflict faced by Americans during this time period. While McFarland’s theory on identity maintenance is sensible for defining social groups and the motivation for prejudice, it falls short of addressing a deeper issue in American society. McFarland’s theory is incomplete because it only addresses the human desire to be part of a group. The human motivation for individual identity maintenance instead of group identity maintenance may have driven people to actually accept and relate to freaks on the basis of what “could have been”, had they been born as freaks as well. While it is true that freaks were discriminated against and separated from the average American, the cause of such prejudice may have been based on envy and the desire to be different. The issues of social status, anxiety, and power are all prevalent issues surrounding the obsession with freak shows, but the longing to stray from the homogeneous American lifestyle should be more carefully considered when questioning the human inclination to discriminate against, and even relate to, freaks.

Misrepresentation and Exaggeration

While the social context of the 19th century was vital for the growing popularity of the freak show, other historical elements and occurrences contributed to the obsession with the abnormal body. Global exploration and Western expansion were important and exciting prospects during this time period, as Americans were curious about the identity of those who lived in the far-away, recently-discovered lands (“Social
Curiosity for the “exotic” led to the great exaggeration and dishonesty prevalent in freak shows. Rachel Adams stresses the fact that “freaks are not born; they are made, and their making relies on the collaborative efforts of many hands who work behind the scenes” (Adams 14). Since the primary motivation for the creation of freak shows was to acquire profit, “misrepresentation was an accepted practice...promoters created a public identity for the person that was being exhibited that would have the widest appeal...” (“Social Construction” 25). As freak shows continued to flourish, “showmen displayed all such people so as to accentuate what was thought to be freakish about them” (Gerber 17). People had come to expect and look forward to freaks displayed in the “exotic mode”, in which “the person received an identity that appealed to people’s interest in the culturally strange, the primitive, the bestial, the exotic...” (“Social Construction” 28). Such “exotics”, however, were treated like animals, with promoters casting “the exhibits as specimens, as inferior and as contemptuous. The association of various human differences with danger, with sub-humans, and with animals, was developed as well as perpetuated by these exhibits” (34). Exotic freaks were labeled “wild men” and “savages”, and would grunt and pace the stage while growling and screaming like animals (28). The presentation of freaks as exotic served to separate them even further from the average American. In one case, P.T. Barnum, the pioneer of freak shows, introduced a freak named William Henry Johnson to his audience and asked audiences, “What is it!?”. A publication used to advertise Johnson’s exhibit read, “While his face, hands, and arms are distinctly human, his head, feet and legs are more like the Orang Outang, indicating his mixed ancestry” (Frost 7). Barnum described Johnson as “a most singular animal’ who was neither human nor beast but ‘a mixture of both’” (Thomson 69). Displayed as the missing link between human and apes, Johnson’s manipulated and exotic appearance is evidence of the separation of freaks and normal people as well as the social prejudice that seemingly ensured such separation.

When discussing Johnson’s experiences in freak shows, one may still question, does the treatment of freaks support the societal regard of freaks as abnormal sub-humans, as animals, or as neither? Is there a difference between these categories? As Barnum portrayed Johnson to be “neither human nor beast but a mixture of both”, he attempted to define the freak in opposition to both the animal and the human instead of in relation to either of them. While Johnson’s treatment by Barnum and audiences verifies his sub-human status, he is surmised to be a sub-human without being considered an animal.
The extent of the disrespect faced by freaks, however, did not cease after death. Instead, it mattered very little whether freaks were alive or dead. A dead, embalmed freak was often displayed to audiences, as it was “equally profitable, and often more readable and manipulated. Freaks and social prodigies were solely bodies, without the humanity social structures confer upon more ordinary people” (Thomson 57). The complete disregard for life, even the life of sub-humans, is difficult to explain, though disability, according to Mary Douglas’s theory, “is in some sense ‘matter out of place’, in terms of the interpretive frameworks and physical expectations our culture shares” (Thomson 33). As 19th century Americans did not view disability as a normal condition, they did not see the immorality and cruelty involved in treating freaks like animals and displaying them even after death. Such callous treatment, however, actually suggests a shift away from the realm of social prejudice, which is heavily explored in McFarland’s theory. In this case, McFarland fails to apply to the freak show argument because it seems as though social status and power struggles are not the reasons that fueled the cruel treatment of freaks. As a non-threatening and insignificant group in the American population, there must be a deeper motivation for the malicious treatment and deviant classification of freaks than just the preservation of social status and group identity maintenance.

The story of the life and death of Joice Heth, an African American freak displayed by P.T. Barnum in the 19th century, provides a powerful example of society’s disregard of life as well as the maltreatment of freaks. As expected, Heth’s true identity was blatantly exaggerated in her exhibition, as she was advertised as being 161-years-old and George Washington’s childhood nurse. Her countless physical anomalies include “weighing only forty-six pounds; she was blind and toothless and had deeply wrinkled skin; she was paralysed in one arm and both legs; and her nails were said to curl out like talons” (Reiss 75). The direct comparison between Heth’s appearance and that of a bird immediately reflects upon her animal-like characterization in society. Her regard as an animal is further validated by the fact that “visitors regularly shook hands with her, scrutinized her, and sometimes even took her pulse” (75). Joice Heth’s true contribution to society, however, was only determined in the time immediately following her death, during which her inhumane and distasteful autopsy attracted a larger crowd than that of her live exhibition. The autopsy, which disproved Heth’s exaggerated age and freak show persona, determined that her corpse had an immense monetary value. In his article “Barnum and Joice Heth: The Birth of Ethnic Shows in the United State”, Benjamin Reiss writes that “the cluster of social meanings adhering to Heth’s corpse made it an
object of considerable value… despite the steep 50-cent admission price, 1500 spectators showed up, netting a large profit…” (78). The freak show obsession, as well as the poor social regard for freaks like Joice Heth, are apparent through the money-making spectacle organized even after her “retirement”. Through Heth’s life, death, and the aftermath that followed suit, much can be surmised regarding the extent of human curiosity and the blatant disrespect and disregard for life. As she was treated like a beast on display, however, Heth’s role in society as a deviant and separated form of abnormal entertainment may not reflect much upon the human capacity for social judgment and motivation to stigmatize others. Just as Johnson was treated as neither an animal nor a human, the sick obsession with Heth’s autopsy cannot be explained by any theory on stigmatization or social prejudice. Therefore, both McFarland and Goffman fall short by failing to address a sensible motivation for human cruelty to such an extent.

According to Benjamin Reiss, Joice Heth’s story of freakery had greater social implications than anticipated. While circus freaks were an easily accessible and popular form of entertainment, Americans were aware of Heth’s autopsy, though they did not anticipate the drastic and unexpected societal changes that resulted. Reiss emphasizes that “her autopsy—like other spectacular displays of race created by the media—dramatized some of the new meanings of racial identity and allowed whites to debate them as they gazed upon her corpse” (74). Joice Heth’s lifetime of mockery and prejudice provided the basis of modern racial identity. Her impact on society’s creation of racial boundaries, while unforeseen, remains consistent with the idea that the upper class whites had the discretion to judge based on skin color and outward appearance:

The story of Joice Heth exposes how entrepreneurs of culture in the antebellum American North borrowed images from the slave-owning South to construct fantasies of northern white mastery, in which the slave’s body was subjected to the modern disciplines of scientific and mass-cultural scrutiny. (80)

As 19th century society was changing with the abolition of slavery, powerful white individuals continued to classify blacks as inferior in order to uphold the northern white mastery. Though Joice Heth’s story of both discrimination and popularity attempts to define the norms of humanness by concluding that some freaks were rejected from the societal definition of normalcy, the evidence of her morbid treatment cannot be explained by theoretical means. It is doubtful that an autopsy of a white, “normal” American would generate enough revenue and media attention to alter modern society, but the reasoning
behind the human motivation to conduct such a procedure as a public spectacle is also uncertain.

**Questioning Theories**

In his book *Freak Show: Presenting Human Oddities for Amusement and Profit*, Robert Bogdan, a Professor of Social Sciences at Syracuse University, expresses an impressive counter-argument that questions the true treatment of freaks. While all previous evidence has supported the idea that freaks were disrespected and treated as sub-humans, Bogdan states that “during its prime, the freak show was a place where human deviance was valuable, and in that sense valued…most human oddities were accepted as showmen. They were congratulated for parlaying into an occupation what…might have been a burden” (*Freak Show* 268). Apparently, on some occasions, freaks were not disrespected and reviled; instead, they were seen as artful performers. Bogdan’s discussion regarding the freaks’ futures after participating in shows contributes to his argument. He stresses that many freaks actually went on to live happy and healthy lives and became respectable citizens, as “outside the boundaries of the freak show…they had neighbors and family; they loved and were loved, were accommodating and were accommodated, were respectful and respected…they were a welcomed…part of that culture” (269). Such information refutes the previous theoretical sources as well as prior evidence, since during the 19th century, research supports the fact that disabled people and circus freaks were not seen as “normal” members of society or as true humans. This raises the question, if freaks were not considered to be truly “human”, then what were they? The lines of humanness have become heavily blurred, as the previously proposed explanation has been neither refuted nor accepted and the true definition of a human has not been established. While some freaks were discriminated against and some were accepted, a general consensus that comments on the freak’s social status can be reached. Whether they were treated as animals, sub-humans, or even as artful performers, all evidence supports the fact that all freaks were considered to be unlike any other American social group. The classification of freaks as “other”, though a vague category, is the only explanation fit for such a complex argument. The concept of the “other” cannot be supported by McFarland’s theory on social judgment or Goffman’s theory on stigmatization, as both sources discuss disability and prejudice on a deviant level. As evidence has shown that some freaks were well respected and highly regarded in society, while others were not considered to be human or animal, the freaks’ disabilities were not always seen as burdens and inferior qualities. Ironically, the only classification that all
freaks shared was their inability to be truly classified in society. Instead of fitting into specific categories of “humanness”, such as sub-humans, animal-like characters, or admired performers, most freaks could not be sorted into particular groups; rather, they could universally be defined as “other”.

From the Viewpoint of the Freak

Robert Bogdan supports his argument that freaks were accepted and highly regarded in 19th century society by exploring the viewpoints of actual freaks on the matter. An intriguing revelation addresses the idea that financial issues led many people to pretend to be freaks in order to take part in freak shows. Bogdan emphasizes that “the freak show reminds us that there is money to be made on human variation. This was at one time so true that people feigned disability in order to qualify for freak shows…abnormality was a meal ticket…exhibits with disabilities had an advantage” (Freak Show 268). This argument indicates that either freak shows were a desperate, last resort for lower-class Americans to survive, or that the societal treatment and view of freaks was not as intense or cruel as evidence has indicated. As the possible veracity of the latter conclusion disputes the hypothesis that classified the freak as a disliked, deviant, and inferior member of society, it is still probable that freaks underwent social judgment in order to develop the American identity:

Motivated interpretations of identity…became the staple of the nation’s reform narratives that made visible the purported evils and monstrosities of such un-American lives. These were set against the industrious and righteous white, Anglo-Saxon, and Protestant identity of the acceptable US citizen. (McGowan 35)

Regardless of their personal reasons for joining freak show exhibits, freaks still contributed to the solution of the American “identity-crisis” during the 19th century by providing an extraordinary body that was seemingly a contradiction to the average citizen. Whether particular freaks accepted this treatment or reviled society for its cruelty, however, is debatable.

Great dispute has surrounded the word “freak” in the modern day regarding its current negative connotation, so it is pertinent to explore the opinion of 19th century circus performers regarding this characteristic word. Apparently, circus exhibits did not mind the term “freak” at all, as “there is no evidence that exhibits took the nouns used to refer to them seriously” (Freak Show 271). However, this opinion of the word changed as “the eugenics movement clouded the scene and human differences became medicalized…the status of human oddities declined, and some exhibits began to resent
what they were called…” (271). Performers began to get insulted over the word “freak”, after it was given an entirely new meaning. Bogdan stresses the idea that 19th century society was quite different from the modern day, as “words like freak did not have the deep stigmatizing and discrediting meaning that they have today” (271). The fact that freaks did not mind their defining title suggests that the strong differences between the modern and non-contemporary societies may have led to the negative regard of freak shows in modern day. As societal values and the social environment have changed dramatically between the 19th and 21st centuries, the concept of freak shows and the actual word “freak” have been twisted to receive an unfavorable, and perhaps convoluted, reputation.

The Grand Finale

When considering the original questions and arguments surrounding the 19th century freak show, one is still inclined to wonder, what did it reveal about humanness? Unexpectedly, the 19th century freak show failed to define what a human actually is, in a non-contemporary society or in a modern world. While the concept of freakery and the detailed accounts of the regard of particular freaks in society affirm the prevalence of prejudice and social judgment, they failed to define the word “human” or provide a clear definition of the freak’s role in society. Instead, the cases of all freaks reveal a universal quality of “otherness” and a shared element of difference. Since each freak had such a unique experience in his or her exhibit, it is impossible to draw a conclusion that would similarly categorize them all. By exploring the theories of McFarland, Goffman, and other experts on the subject, it is possible to identify the reasoning behind the prejudice and judgment faced by a number of freaks, but such theories fail to apply to many aspects of this 19th century social dilemma. What can be revealed through the study of freaks, however, is a clearer definition of the normal human, instead of the abnormal. Regardless of social class, status, and interests, people were drawn to freak shows by their desire for both social acceptance and individuality. In a time of great social and economic uncertainty, Americans embraced the freak’s unconventional and abnormal lifestyle yet satisfied their own insecurities surrounding social acceptance. The average human’s insistence on being considered an individual, yet reluctance to actually become one is an issue that is still prevalent nearly 200 years after the freak show’s introduction. Exploring 19th century freak shows has revealed darker themes regarding the “normal” human as well. The endless limits of human curiosity contributed to the morbidity and racial bias that characterized the nation’s social issues for subsequent generations. The particular
stories of Joice Heth and William Henry Johnson uncovered qualities of sadism and racism that, perhaps unbeknownst at the time, were prevalent in members of all social classes. Eventually, the field of medicine, which is considered to be an altruistic and charitable institution, finally completed the degradation of the freak in 19th century society by extinguishing the concept of “otherness”. Ultimately, through “the rise of genetic theory, human deformities increasingly came to seem less marvels than diseases that were dangerous to the progress of the species…” (Gerber 19). Ironically, the same medical research that eradicated the freak’s complete exploitation as a characteristic “other” also ascribed a negative modern connotation to the word “freak” that only further enforced current prejudice against and judgment of the abnormal. Though “economic hard times, technological and geographic changes, competition from other forms of entertainment, the medicalization of human differences, and changed public taste resulted in a serious decline in the number and popularity of freak shows…” (“Social Construction” 23) in contemporary society, it is impossible to deny the lasting impact of the 19th century freak show on the American entertainment industry and the establishment of modern social standards.

Bibliography


MEDICINE
**Abstract**

Prior to the 1980s, autism was largely perceived as a rare disorder, affecting less than 0.05% of the population. However, this statistic has radically changed. Today, the United States is ostensibly afflicted with an autism epidemic. The latest report of incidence indicates an appalling 18 fold increase. However, does this rising trend in prevalence truly reflect an increase in incidence? Many analysts argue in opposition to the reported rise, claiming that the rise reflects changes and improvements in case ascertainment. This paper assesses the validity of arguments in favor of and opposed to the notion of an autism epidemic. After analyzing changes in diagnostic criteria, nomenclature, age at diagnosis, methodology, socio-cultural influences, as well as diagnostic substitution, the paper concludes that autism has not truly reached epidemic proportions.

**Introduction**

In the last two decades, the number of children diagnosed with autism has surged in the United States. According to the Center for Disease Control and Prevention (CDC), approximately 1 in 110 children in the United States have an Autism Spectrum Disorder (ASD). This accounts for an astounding 18 fold increase compared to the diagnosis of 1 in 2000 in the early 1980s. However, is this truly indicative of an autism epidemic? ASDs comprise a group of psychological and social disorders including Autistic Disorder, Asperger Syndrome, and Pervasive Developmental Disorder-Not Otherwise Specified (PDDNOS). These subtypes are differentiated by age of onset, severity of symptoms, and the extent of language delay and intellectual disability. Characteristic symptoms of autism include impaired social interaction, delays in language, and repetitive behaviors. ASDs can usually be diagnosed before age three and last throughout an individual’s life. Some children display symptoms of autism within the first few months of birth. However, the majority of children exhibit symptoms up until 24 months or later. A few even develop normally for up to two or three years and then suddenly stop developing mentally (ASDs 1). Thus, diagnosing ASDs is extremely difficult and haphazard since there is no single foolproof medical test that can detect autism. While both government-sponsored and private industries are diligently working towards identifying the etiology of autism, the origins of autism continue to be shrouded in mystery. Over the years, analysts have developed rather broad diagnostic methods which fallaciously lead to the assumption that autism has reached epidemic proportions. In the research article, “Unpacking the Complex Nature of the Autism Epidemic,” Dr. Helen Leonard and colleagues suggest that autism cannot be qualified as an epidemic. Throughout the article, she discusses the impact of changes in diagnostic criteria, reduction in age at diagnosis,
improved case ascertainment, socio-cultural influences, and diagnostic substitution on ASD prevalence. Leonard emphasizes that the determination of the extent of prevalence of autism is crucial to understanding the etiology and prevention of neurodevelopmental disorders such as ASDs (Leonard 548). Thus, the notion of an autism epidemic is rather inflated.

**Diagnostic Changes**

During the past three decades, diagnostic criteria of autism have been continuously tailored, resulting in an increasing frequency of false positive cases of autism. Until the 1960s, the term “autism” was used informally to refer to symptoms of schizophrenia and was not yet regarded as a sovereign disorder. After the American Psychiatric Association (APA) published Diagnostic and Statistical Manual II (DSM-II) in 1968, autism was formally recognized within the diagnosis of childhood schizophrenia. However, schizophrenia at the time was a rare condition, which subsequently led to the assumption that autism too was a rare condition, as autism was regarded as a corollary of childhood schizophrenia. In the minds of many researchers, the entities remained one and the same, until the APA published DSM-III (1980). This new manual formally recognized autism as separate from schizophrenia and categorized it as one of Pervasive Developmental Disorders (PDD). The relaxed criteria defined autism as a sovereign disorder, independent in its symptoms, etiology, and prognosis. As a result, diagnoses of autism suddenly skyrocketed (Eyal 26).

Diagnostic standards were further broadened in terms of age and criteria for determining autistic individuals. For instance, with the publication of DSM-III-R (1987), the age of onset of 30 months was dropped. Instead, the age of onset could be applicable anytime during infancy and childhood. Moreover, the diagnostic criterion of complete lack of social awareness was modified to merely abnormal social responsiveness. The altered standard for diagnosis constituted three main symptoms: lack of social play; adequate speech but incapacity to engage in sustained conversations; restricted range of interests. This basis of diagnosis remained in DSM-IV (1994), although standards were further broadened. For example, whereas DSM-III and DSM-III-R “required individuals to meet six of six criteria for an autism diagnosis…the 1994 version (DSM-IV), which is currently in use, requires individuals to meet any eight of 16 criteria” (Lilienfeld 59). According to “The Autism Epidemic: Fact or Artifact?,” five studies comparing DSM-III and DSM-IV criteria from 1970 to 2000 revealed increases of 1.4 to 1.6-fold frequencies in diagnoses. Specifically, the study examined 454 children
previously diagnosed by the standards of DSM-III and subsequently measured by DSM-IV criteria (Wazana 732). Thus, changing diagnostic criteria to reflect better understanding of autism predictably results in a high rate of “false positive cases” (Leonard 549).

Nonetheless, firm believers of naturalist explanations for increasing diagnoses may claim that these changes in criteria reflect a better understanding of autism. However, they would be hard-pressed to refute such claims, “since the only way to diagnose autism is using the very same behavioral criteria that have changed, and there is no objective marker to use in order to check for their validity” (Eyal 31). In other words, the ambiguity in the etiology of autism, whether the disorder results from genetic, neurological, or environmental factors, makes it impossible to judge an actual increase in autism. Modification of the diagnostic criteria to reflect better understanding of autism results in changing objective analyses. Diagnoses based on these criteria tend to be inflated statistics.

**Nomenclature**

The concept of autism has evolved over the years, as reflected by its increasingly inclusive quality. Understanding autism remains a challenge because of its very broad definition. The meaning as well as the nomenclature of autism has undergone change as it became an entity comprising a broad spectrum of disorders. These changes, in turn, have led to the inclusion of other similar illnesses such as Asperger’s syndrome and PDDNOS. Throughout this metamorphosis, as the diagnostic boundaries of autism expanded an increasing percentage of individuals, formerly diagnosed under other categories of illnesses, were suddenly “autistic.”

In 1943 Dr. Leo Kanner of Johns Hopkins University described autism for the first time. He coined the term based on his observation of 11 children who had withdrawn from human interaction. During the 1940s through the ‘60s, the medical community felt that children who had autism were schizophrenic. This quality of autism as a corollary of childhood schizophrenia was recorded in DSM-II. However, the DSM-III revised this definition, describing autism as a distinct entity and classified it as one of the Pervasive Developmental Disorders. Moreover, the term, Autism Disorder (AD) was introduced. According to the CDC, AD refers to a stronger strain of autism, defined by “significant delays in language, social and communication impairments, and severely limited interests” (ASDs 1). The revision of DSM-III to DSM-III-R saw the introduction of PDDNOS, which refers individuals who display minor symptoms of autistic disorder.
These individuals might only have social and communication challenges. Furthermore, Asperger’s syndrome was later introduced within the Autism Spectrum Disorders. People with Asperger’s syndrome usually have some milder symptoms of autistic disorder. They might have social challenges and unusual behaviors and interests. However, they typically do not have problems with language or intellectual disability. Together, Asperger’s syndrome, PDDNOS, and AD comprise ASDs (Lord 11).

Although there are no case studies that provide statistical analysis of increasing diagnoses from the time autism was termed to its formal recognition as AD under DSM-II, Dr. J. G. William’s article “Systematic Review of Prevalence Studies of Autism Spectrum Disorders” describes such increases while comparing typical autism (AD) to ASDs. Specifically, William’s analysis extracts published prevalence studies from MEDLINE and EMBASE and uses the charted statistics to compare prevalence rates of AD to ASDs. The studies indicate that the estimated prevalence of typical autism was 7.1/10,000 compared to 20/10,000 under the broader ASDs. Thus, the diagnosis of merely AD accounts for about 7 cases and the inclusion of PDDNOS and Asperger’s syndrome increase the prevalence rates to 13 additional cases. These findings reinforce the notion of increasing diagnoses arising from a more inclusive autism, which consequently leads to the misconception of rising ASD prevalence (William 6).

Plausibly, many critics question the necessity of having the general concept of ASDs. They believe that among the three disorders comprising ASDs, there is little to no biological homogeneity. Moreover, each disorder has essentially its own specific package of symptoms and behaviors. Throughout the article, “Autism Spectrum Disorders,” Dr. Catherine Lord and S.L. Bishop debunk such notions. They claim that “despite ongoing attempts to ‘unpack’ autism into separable components, significant and early-arising difficulties in basic aspects of social communication and restricted, repetitive behaviors or interests are the commonalities that strongly define this group” (Lord 16). In other words, individuals who are diagnosed with ASD are characterized by mainly three main domains of symptoms that differentiate them from other diagnostic groups. These symptoms include impaired social activity, repetitive behaviors, and limited interests.

**Age at Diagnosis**

Shifting the age of diagnosis to a younger age leads to increasing frequencies of ASD prevalence, although these rates are misrepresentative of autism incidence. Throughout the article, “The Changing Prevalence of Autism in California,” Dr. Lisa A. Croen analyzes such a shift. In her study, Croen examines the “shift of age at diagnosis
from a distribution based on the 1987 California birth cohort to distributions based on the
1991, 1992, and 1996 birth cohorts” (Croen 211). The average ages at diagnosis
corresponding to these years were 6.8, 4.9, 4.4, and 3.3 years, respectively. The trend
represents a negative function of age in terms of diagnoses, for the mean age at diagnosis
for children changed from 6.8 years in 1987 to 3.3 years in 1994. As age at diagnosis
decreases, more children with ASD will be included earlier in the cohort. For example,”
whereas in the 1987 cohort, by age 5, only 20% of cases of AD are identified, in the
1992 cohort 98.7% are identified” (Wazana 722). Thus, the diagnosis of children at
younger ages increases prevalence rates. Such trends are misleading and do not represent
a true rise in incidence. Rather, they are indicative of changes in diagnostic perception.

Methodology
In addition to changing age at diagnosis and diagnostic criteria, methodological
considerations have also improved the efficiency of case ascertainment, resulting in an
artificial ASD increase. According to “Prevalence of Parent-Reported Diagnosis of
Autism Spectrum Disorder among Children in the US,” Dr. Michael D. Kogan and
colleagues suggest that multiple factors in case ascertainment reflect a rise in ASD
prevalence. Kogan asserts that “the last 10 years have seen dramatic increases in
available diagnostic services; much greater awareness of the condition among parents,
doctors, and educators; and a growing acceptance that autism can co-occur with other
conditions” (Kogan 1397). The accumulative effects of such considerations inevitably
result in increasing rates of autism prevalence.

Furthermore, methods of screening populations also reflect improved case
ascertainment. In “The Incidence of Clinically Diagnosed Versus Research-Identified
Autism in Olmsted County, Minnesota, 1976–1997,” Dr. William J. Barbaresi and
colleagues assay “the potential for misleading interpretation of results from
epidemiological studies that rely on clinical diagnosis of autism to identify cases”
(Barbaresi 464). While examining the rate of clinical diagnosis of ASD in Olmsted
County, Minnesota, Barbaresi’s findings indicate a rate of 1.5/ 100,000 from 1980-1983
and 33.1/ 100,000 from 1995-1997. Alternatively, the rates of research-identified autism
were 5.5/ 100,000 from 1980-1983 and 44.9/ 100,000 from 1995-1997. Whereas the
former case indicates a 22-fold increase, the latter case represents an eight-fold increase.
Thus, clinical diagnoses (previously identified cases) reflect a 22-fold increase in
apparent change of incidence. However, such a rise is rather unreliable as there is no
comprehensive epidemiological approach to identifying ASD incidence. Barbaresi
affirms that the rise can be attributed to enhanced case ascertainment rather than a “true increase in the number of children affected by autism” (Barbaresi 468).

Legal changes may result in improved methods for diagnosis as well. In the article “Three Reasons not to Believe in the Autism Epidemic,” Dr. Morton Ann Gernsbacher investigates the Individuals Disabilities Education Act (IDEA) ratified by Congress in 1991. The federal law governs how states and public agencies provide care to children with disabilities and requires school districts to provide precise counts of children with disabilities. However, “IDEA has resulted in sharp surges in the reported numbers of children with autism” (Gernsbacher 57). Nonetheless these “administrative-based estimates” are not representative of careful diagnoses of autism and therefore lead to distorted prevalence rates of autism. In short, educational based diagnoses are also misrepresentative of ASD prevalence rates.

Socio-cultural Influences

Certain social influences have also misleadingly spurred ASD diagnoses. Throughout the article, “Social Influence and the Autism Epidemic,” Dr. KY Liu endorses the belief that societal influences significantly contribute to the rise in prevalence of autism. However, Liu’s standpoint reflects an “epidemic of discovery” rather than an “epidemic” of autism incidence (Liu 1389). Her thesis pivots about the notion of “information diffusion” arising from close proximity among families. Liu asserts, “that children living in very close proximity to a child previously diagnosed with autism are significantly more likely to be diagnosed with autism than are comparable children who lack such exposure” (Liu 1387).

From 2000-2005, Liu and colleagues conduct a case study to examine the validity of this notion of increasing autism prevalence arising from social diffusion. While assaying a sample population of 953,464 during this five-year period, Liu arrives to the conclusion that, “compared with children who are 501 meters–1 kilometer away from their nearest neighbor with autism, those in close proximity (1–250 meters) to a child with autism have a 42% higher chance of being diagnosed with autism in the subsequent year” (Liu 1408).

Leonard mentions that “socioeconomic disparities may also contribute to...ASD prevalence” (Leonard 551). When presented with such a statement, many would initially reject such an outlandish claim. After all, the assertion at first glance seems self-contradictory. If children from socially disadvantaged backgrounds tend to receive fewer diagnoses than children from more advantaged backgrounds, would not ASD prevalence
be representative of mainly the advantaged groups? Should not this reflect a decrease in ASD prevalence?

The counter-argument remains valid to the extent that socioeconomic influences do not truly and directly reflect a rise in ASD prevalence. However, these influences affect the age at diagnosis, which consequently contribute to increases of autism diagnoses. Despite not being diagnosed as early as socially advantaged groups, children of families of disadvantaged groups will eventually receive diagnoses. When these low-income families do receive diagnoses of autism for children, the ASD prevalence would appear to have increased suddenly. Thus, the incidence of autism remains constant. Rather, certain families receive diagnoses later as a result of socioeconomic differences.

**Diagnostic Substitution**

The rising number of false positive cases of ASD may also be attributed to diagnostic substitution. In defining this hypothesis in her medical journal, “Is There Really an Autism Epidemic,” Dr. Scott O. Lilienfeld asserts “it is possible that the overall ‘pool’ of children with autism-like features has remained constant but that the specific diagnoses within this pool have switched," (Lilienfeld 59). In other words, Lilienfeld suggests that the incidence of autism may have remained stagnant or increased marginally. Rather, the names or diagnoses ascribed to such disorders may have changed.

Liu endorses this notion of diagnostic substitution when she examines the sample population of California for socio-cultural influences affecting ASD prevalence. While examining these social interactions, she notes that “proximity also increases the chance of autism rather MR [Mental Retardation] diagnosis” (Liu 1388). Thus, diagnostic substitution in favor of autism tends to increase ASD prevalence as well.

In his novel, “The Autism Matrix: The Social Origins of the Autism Epidemic,” Dr. Eyal Gil examines the circumstances resulting in diagnostic substitution. One possibility is that some children may be diagnosed with autism rather than other neuropsychiatric illnesses to “facilitate receipt of needed services, particularly from publicly funded programs such as Early Intervention and special education programs” (Kogan 1400). However, Gil suggests a more subtle motive behind diagnostic substitution. He asserts that an ASD diagnosis for a child is much more appealing for a parent than other mental disorders. Unlike mental retardation or other illnesses, an autism diagnosis usually implies the idea of a “critical window of opportunity,” a period during childhood when intensive intervention can significantly impact “neural pathways” (Gil 23). Ultimately,
parents would prefer an ASD diagnosis for their child because usually, the symptoms of autism can be significantly mitigated.

**Conclusion**

In short, the notion of an autism epidemic is unfounded. Autism incidence has likely increased only marginally throughout the past few decades in the USA. In other word, the pool of autistic individuals has remained more or less constant. Rather, the names and criteria designated to the disorder have changed. Unfortunately, the true incidence and prevalence of ASD cannot be confirmed, as researchers have not yet discovered any biological marker, such as a specific gene, to diagnose the disorder. Current diagnosis is, at best, haphazard. The three main criteria include delays in communication, limited interests, and impaired social interactions. However, there are no specific guidelines for diagnosis, as the criteria changes with improving case ascertainment. Shifting age at diagnosis, changes in diagnostic criteria and nomenclature, as well as socio-cultural influences comprise the fundamental factors that contribute to a misleading rise in autism. Roy Richard Grinker uses a fitting analogy of “a perfect storm” when describing the factors that contribute to the notion of an autism epidemic. He states that the epidemic is merely an illusion, whereby, “all of these factors com[e] together and act together to give us a situation that feels in your gut like an epidemic” (Grinker 143).

**Bibliography**


Physician Assisted Suicide: An Exploration of the Dying Process
Kunwar Kaur

Abstract
Up until about two decades ago, the practice of physician-assisted suicide was prohibited in the United States. However, the issues surrounding the legalization of physician-assisted suicide have long been the topic of debate as proponents seek to change public policy. Just as keenly, though, the opposition seeks to alienate any ideas that may even remotely resemble physician aid in dying. With such a rigorous ongoing debate, it becomes necessary to step back and examine, once again, the underlying cause for the emanation of such a request in the first place. A shared belief by both sides is that the groups of people most susceptible to the outcome of this debate are terminally ill adults and terminally ill children. Consequently, it is crucial to ask the question, how exactly does having the option to request physician-assisted suicide influence the dying process of a terminally ill patient? The mere option of requesting physician-assisted suicide in the unfortunate event of a debilitating terminal illness shows promise in effectively eliminating suffering, demedicalizing the ever so medicalized death, promoting patient autonomy, and encouraging physician nonabandonment. Physician-assisted suicide, therefore, offers a wide scope of improvement to a terminal patient’s dying process.

Introduction
Perhaps the most vulnerable time in a person’s life emerges first when the person is born, and then again when the person readies to leave this world. Approaching death can spark numerous emotions; inevitably fear being the most powerful. This fear can often interfere with, perhaps even manipulate, the decisions one makes pertaining to his final moments. An affiliate with Yale and Harvard University, Daniel Callahan is a leading bioethicist and President Emeritus of the Hastings Center, one of the first centers in the US devoted to research in the field of biomedical ethics. His essay, “Reason, Self-determination, and Physician-Assisted Suicide,” will help form part of the theoretical frame for this research as Callahan argues that achieving death with dignity and surmounting the fear that an impending death instills are the two fundamental reasons that explain why terminally ill patients may request deviant end of life solutions such as physician-assisted suicide (Callahan 53). However, Callahan firmly believes that a turn to physician-assisted suicide is resorting to curing one evil with another and is an utter mistake that carries the potential of devaluing one’s dying process (Callahan 68).

Nevertheless, Callahan represents just one aspect of the debate about end of life experiences. Professor Stephen Ziegler, a former Mayday Pain scholar and an associate professor in the Division of Public & Environmental Affairs at Indiana University-Purdue University, discusses a different point of view. His research article “Collaborated Death: An Exploration of the Swiss Model of Assisted Suicide for Its Potential to Enhance
Oversight and Demedicalize the Dying Process” will help form the other part of the theoretical frame for this paper. In this article, Professor Ziegler emphasizes that PAS models allow patients to dodge unnecessary medical interference during their most vulnerable and meaningful chapters in life. He stresses that with the advent of modern medical technology, prolonging life and thus, the dying process, is a lot more feasible nowadays. However, sustaining a life simply to burden it with endless medical interference and more suffering is quite contrary to the purpose of medicine (Ziegler 318). How exactly does having the option of physician-assisted suicide (PAS) influence the dying process of a terminally ill patient? This question aims to inspect the very root of the debate. All debaters, proponents and opponents alike, deliberate this question before shaping their views on the subject of PAS. Having the option of physician-assisted suicide indeed helps obviate an otherwise unwanted, burdensome death, and thus improves the dying process.

**Historical Context**

Although the infamous Dr. Jack Kevorkian, better known as Doctor Death, is the first figure to come to mind upon the discussion of assisted suicide, PAS has been the subject of public discourse since the fourth century B.C. (Pickert). This debate of whether physicians have the right to help their patients end their lives stems from the original Hippocratic Oath, which includes the explicit statement: *I will not give a lethal drug to anyone if I am asked, nor will I advise such a plan* (Pickert). Dr. Jack Kevorkian was the first to openly employ physician-assisted suicide in the United States in 1990 after his medical license had been revoked in the state of Michigan. He claimed to have helped 130 civilians end their lives and served a seven-year sentence in prison beginning in the year 2000 (Pickert).

Arguably, Kevorkian’s doings serve as the basis of modern day opposition to physician-assisted suicide, which fears uncontrollable and illegitimate ending of lives under the title of assisted suicide. According to Dr. Arthur Caplan, director of the Center for Bioethics at the University of Pennsylvania, much of the opposition to PAS fears the emergence of another Doctor Death (“The Kevorkian Verdict”). Caplan comments, “proponents said the biggest obstacle they faced [in legalizing PAS] was Kevorkian and what he had done” (Caplan). Despite this obstacle and Kevorkian’s influence on the debate of PAS, however, the citizens of Oregon decriminalized PAS in 1997 (Caplan). Soon after, Washington joined the effort and sought to legalize PAS. Today, the select few places known for employing PAS include the Netherlands, Switzerland, and
Belgium, and the states of Oregon, Washington, and Montana (Pickert). Nonetheless, PAS fails to be a widely exercised practice because due to Kevorkian’s actions, many refuse to even consider the benefits PAS may demonstrate during a terminal patient’s dying process.

**Key Words**

The study of medical ethics addressing the ongoing debate of PAS often encounters an interesting trend. There exists a constant quarrel amongst ethicists, in which many theoretical or technical arguments are often combated with moral and emotional sentiments, and surely vice versa. Because of this ambiguous tendency and the delicacy of the debate itself, it becomes critical to define certain terms and then strongly adhere to those definitions. Physician assisted suicide refers to physician prescription of a lethal drug that the patient willingly self-administers. For the sake of this research, hastened death in medical context is the same as physician assisted suicide, with the exception of who administers the lethal drug. Also, the term demedicalization refers to lessening all medical interference during the dying process of an individual, including life sustaining machinery and medicinal drive to prolong life.

Aspects of the PAS debate that consider legality in terms of regulation are not directly relevant to a patient’s dying process. Therefore, in order to avoid transforming this exploration of the dying process into yet another discussion of legalizing PAS, legal issues regarding the law and regulation are omitted. The scope of this research paper focuses primarily on a few crucial elements of a complex dying process: suffering, both physical and psychological, the demedicalization of death, a patient’s desire for control, and medical obligation. The actual event, death itself, is inclusive and is considered a part of the dying process. A proper and thorough address of the posed research question is only achievable if all these aspects and the various viewpoints pertaining to these aspects are reflected upon. Although death and the dying process are hardly universal, this research paper assumes the dying process as an event in the life of a human being of any descent.

**Demedicalization of the Dying Process**

Having the option to request physician assisted suicide in the face of a terminal illness can avoid prolonging a painful death. Professor Ziegler asserts, “Modern medicine, in its zeal to conquer death, has become obsessed with its curative function and the ability to extend the lives of the dying. To many in the medical community, death represents failure and is something to be avoided at all costs, and like many other social
problems in the United States, has become medicalized” (Ziegler 319). Death portrays an
enemy that physicians seek to defeat by any means necessary. But in this fight against
death, do the patient’s best interests remain top priority? The dying process has become
ecessarily medicalized over the years and not only does the patient live longer, he dies
longer as well. In such circumstances, the dying patient is kept alive simply to celebrate
a medical triumph, one that undermines the patient’s well being and the practice of
medicine itself. When the patient, subject to life prolonging medical intervention,
agonizes in a purely medical setting rid of comfort and friendly faces, his dying process
in fact takes on the role of an enemy - an invincible enemy that not even traditional
medicine can overcome. Ziegler points out that the practice of PAS can help end this
agony and can put an end to further, meaningless prolongation of death, reversing this
trend of medicalized dying (Ziegler 324). PAS offers a solution to rectify such a
situation, one that a terminal patient’s dying process may often elicit. In doing so, the
option of PAS can improve one’s dying process.

In a 2009 study published in the Archives of Internal Medicine, Zhang et al. sought
to analyze the relationship between end of life costs and the extent of physician
involvement. They found that patients utilizing life sustaining and enhancing equipment
were not only subject to higher medical bills, but also died a prolonged death with more
“physical distress and a worse quality of death” (Zhang et al). It is true that medicinal
intervention undoubtedly possesses the ability to prolong life. However, is a sustained
life always in the best interest of the terminal patient during his dying process? This
study suggests that a medicalized setting does not always prove to be beneficial, and can
even intensify a deteriorating patient’s dying process. In a 2010 study published in the
Archives of Pediatric and Adolescent Medicine, Dussel et al. found that “on average, the
children [with terminal cancer] who died of a treatment-related complication suffered
from more symptoms than those who died of progressive disease” (327). This discovery
reflects that those who let nature take its course not only died a more “natural” death, but
suffered less as well. It also supports the idea that death has indeed become overly
medicalized and for all the wrong reasons. PAS not only serves as an instrument to
demedicalize the way we die, but also helps prevent unrestrained use of medical
technology that may result in an unpleasant dying process.

PAS Medicalizes Suicide

Opponents of PAS can easily argue that physician-assisted suicide is indeed a
medical procedure, thereby invalidating Ziegler’s argument that PAS can demedicalize
the way we die. Here is an instance where a morally driven argument of
demedicalization is confuted with a technical argument, expressing the medicalizing
effects of PAS on suicide. In his essay, Callahan endorses the argument that unlike
unassisted suicide, PAS is a social act, requiring the assistance of a physician (Callahan
60). In a Hastings Center Report article entitled “Physician-Assisted Suicide: Promoting
Autonomy or Medicalizing Suicide?” Tania Salem also argues “that physician-assisted
suicide does not demedicalize death; rather, it medicalizes suicide” (Salem 30). For
Callahan, Salem, and other opponents, PAS ultimately takes the very private action of
suicide and transforms it into a medical event. Salem even goes as far as claiming that
“physician-assisted suicide implies not a resistance to but an extension of medical power
over life and death” (Salem 30). She suggests that the medical nature of the procedure
prevents PAS from effectively demedicalizing death and instead increases medical
involvement during one’s dying process. The quality of the dying process, with this
reasoning, declines with the option of PAS.

This argument holds some merit. However, is it appropriate to equate a suicidal act
to physician-assisted suicide? In a letter response to Salem’s article published in The
Hastings Center Report, Dr. Thomas Preston, a pediatric neuropsychologist and professor
at University of Washington, argues that Salem “refuses to recognize the difference
between ordinary suicide and physician-assisted suicide” (Preston 4). Regular suicide is
often outside of medical context in terms of dying; it can revolve around a mentally
unbalanced, yet otherwise healthy individual (Preston 4). Without a distinction between
the two acts, Salem quite callously ignores the conditions in which one seeks PAS: a
painful, terminal illness. This blatant disregard is sufficient to discredit Salem’s
argument and once again endorse Ziegler’s view that PAS demedicalizes death and thus
improves the dying process.

The Suffering Patient

The original debate for the legalization of PAS revolves around two central issues.
The first is a patient’s right to end his suffering and medical obligation to ensure this
endeavor succeeds. It is unmistakable that intense suffering can interfere with a person’s
dying process, often compelling the patient to eagerly await death. Doctor Eric Cassell in
his essay “When Suffering Patients Seek Death” insists, “Patients who are terminally ill
look forward to death not because they want to die but because their suffering has made
living intolerable” (Cassell 76). The anguish of a constantly deteriorating health, both
physical and psychological, can leave the patient imploring for a hastened death. That

patients want to end this suffering is no surprise and with terminal cases, extinguishing the agony often implies extinguishing life. In a 2003 study conducted to determine patient characteristics related to requests for PAS, Meier et al. concluded that all patients requesting and receiving aid in death were immensely burdened with physical and psychological suffering. Meier et al. comment, “patients receiving a physician’s assistance in hastening their death are making specific requests due to a substantial burden of physical pain and distress, and are expected to die of their illness within a short time” (1541). This suggests that with a prospect of recovery and without intolerable suffering, a patient himself wants to live and battle his disease. However, those that do plead for hastened death do so because of the great suffering their illness brings about. Awarding credibility to a patient’s request for PAS, these findings lead one to believe that the plea for PAS stems from an earnest desire to achieve a dying process free of suffering. Therefore, having the option to make this request shows promise in improving one’s dying process.

Every aspect of the PAS debate, or any medical debate for that matter, intensifies when the focus shifts from terminally ill adult patients to terminally ill children. Deeming a child’s illness terminal and incurable is far more disconcerting than accepting the terminal nature of an elderly patient’s illness. Although delivering PAS in a case involving terminally ill children is an incredibly lamentable idea, it is difficult to ignore the shocking similarities between the physical and psychological suffering of adults versus that of children. In an article published in the *New England Journal of Medicine* entitled “Symptoms and Suffering at the End of Life for Children with Cancer”, Wolfe et al. concluded that “overall, 89 percent of the children [diagnosed with terminal cancer] experienced a lot or a great deal of suffering” during their terminal moments (330). This suggests that the dying process of these unfortunate children consisted of unbearable suffering, a suffering so severe that no child should ever have to bear. Could the option of PAS offer these children a better, less painful dying process? Perhaps, yes. In the article “Considerations About Hastening Death Among Parents of Children Who Die of Cancer,” Dussel et al. report the results of their study conducted to estimate the frequency of hastening death and PAS discussions in cases of terminally ill children. The results suggest that “more than 1 of every 8 parents report considering [hastened death] during their child’s illness, and they tended to do so if their child was in pain” (Dussel et al. 236). Although this means that 7 out of 8 parents do not contemplate PAS, to elicit such a response from even a single parent is utterly inconceivable. However, could one even
begin to envision the suffering a parent must witness his child experience before resorting
to such a miserable notion? In the end, the truth is very bitter. It is likely that the option
of PAS, although very permanent, can eliminate suffering from one’s dying process and
allow these children to achieve a more peaceful death.

**Hospice and Palliative Care**

An opposing point of view to the idea that PAS can eliminate suffering may entail
the argument that PAS is an unnecessary course of action in the presence of good
palliative care, that palliative care is a sufficient means of ending patient suffering. This
opposition firmly believes that with today’s medicine, “virtually all suffering can be
relieved, that in the presence of good hospice care suffering is much less common, that
pain, which is a frequent source of suffering can almost always be controlled” (Cassell
78). According to this belief, with compassionate physicians and proper use of medicinal
facilities, all pain and suffering is curable. In her article “Competent Care for the Dying
Instead of Physician-Assisted Suicide, Katherine Foley, a known neurologist and
advocate of palliative care, insists that “palliative medicine has developed guidelines for
aggressive pharmacologic management of intractable symptoms in dying patients,
including sedation for those near death” (54). She is confident in modern palliative
medicine and believes that with proper execution, palliative care can replace the option of
PAS and its morbid endeavor to improve the process of dying by hastening death.

However, what Foley fails to realize is that despite employment of exceptional
hospice care, terminal patients still suffer during their dying process. Ziegler points out
that “just because one is enrolled in hospice does not necessarily mean that they would
not want PAS” (325). According to the tenth annual report on Oregon’s Death with
Dignity Act, “88% of those who requested PAS were currently enrolled in hospice care”
(“Tenth Annual Report” 2). Therefore, it is obvious that palliative care fails to satisfy the
needs of terminal patients who then seek PAS to relieve their suffering. Now the
question that remains is whether this outcome is a product of poor physician training or
an inability to palliate a suffering so intense. Research suggests that both of these reasons
are responsible for the shortcomings of palliative care. A 2002 study published in
*Palliative Medicine* sought to investigate the failure of palliative care to achieve adequate
symptom control. Grande et al. discovered that “there was generally low agreement
between patients' and [general practitioners'] reports of patients' symptoms” and that
“[general practitioners] were most likely to miss symptoms which were perceived to be
difficult to control and which were less prevalent in the patient sample” (405). This study
suggests that because of the rarity of cases requiring palliative care, physicians are unable to accurately identify terminal patient symptoms, without which it is impossible to make patients feel comfortable during their dying process. The suffering lingers.

Another point the opposition fails to acknowledge is that suffering is not always physical. In fact, physical symptoms lead to suffering, which is “an afflicted state of being” (Cassell 76). Unconsciously therefore, the hallmark of medicine, to relieve one’s suffering, is often substituted with pain relief. Pain medication may succeed in numbing the physical agony, however, fails to cure the patient’s suffering. Cassell argues, “the belief that suffering can be relieved in all or ‘virtually all’ cases displays ignorance of what suffering is and how it comes about” (79). Suffering is not only the loss of bodily functions and debilitating health; it is more psychological in that it entails the helplessness brought upon by the terminal illness or the burden of dying a painful death. Certainly, palliative care, or any other form of care for that matter, fails to cure such a suffering during one’s dying process.

Even when the suffering is merely physical pain, studies show that the patient is not made as comfortable as possible. This occurs perhaps because all physicians are “not of one mind on the link between physical pain and request for hastened death” (Ziegler and Lovrich). In And a Time to Die: How American Hospitals Shape the End of Life, author Sharon Kaufman explores the internal aspects of the modern American hospital system and with the help of the interviewing process, reports the protocol when dealing with a terminally ill patient. She reports a case study in which, “…the hospitalist physician doesn’t believe in intravenous morphine drips, commonly used with dying hospitalized patients. He feels that drips are all too close to assisted suicide, so as a personal policy he just doesn’t use them…As a result, the patient is not really made comfortable” (Kaufman 135). This is shocking support for the idea that even when physicians can alleviate the patient’s pain, their fear of engaging in an illegal act of PAS, or something that remotely resembles it, keeps them from effectively providing palliative care. Not only is this account suggestive of the failures in palliative medicine, but also supportive of the idea that the option of PAS, if legalized, would allow physicians to practice better palliative care and thus, effectively improve one’s dying process.

Acceptance of the Suffering

Other criticism of the idea that having the option of PAS can help eliminate suffering from one’s dying process revolves around the concept of necessary suffering. Callahan’s introduction of this concept challenges PAS, however, in a completely
different manner. He explains, “No moral impulse seems more deeply ingrained than the need to relieve human suffering” (Callahan 54). He agrees that lessening one’s discomfort and suffering is the very basic tenet of all medicinal approaches and humanity itself. However, Callahan points out that in order to learn the value of life it is important to “discern when suffering cannot, or should not, be wholly overcome, when our duty may be to accept the suffering of another, just as the person whose suffering it is must accept it” (Callahan 55). That is, one must not dismiss significant aspects of life simply because they bear a possibility of suffering and should instead embrace the causal lesson taught by it. With these ideals, the escape PAS offers runs the risk of devaluing the dying process, deeming the natural condition that may sometimes entail suffering, unnecessary suffering. In fact, he argues, suffering needs to be evident. It is interesting to note that once again, the ambiguity of the debate here is evident – the very objective reality of suffering is combated with a moral argument addressing the necessity of existential suffering. In any case, Callahan worries “if we make the avoidance or relief of suffering itself the highest goal, we run the severe risk of sacrificing, or minimizing, other human purposes” (56). He points out that when a person above all aims to reduce suffering, he may inadvertently neglect significant goals in life. Dismissing PAS, Callahan’s views nurture this concept of necessary suffering – suffering that no one should seek to overcome, but grow to accept. With this suffering, or more appropriately, sacrifice, one’s death gains meaning and further enriches the dying process.

Although it is acceptable to say suffering in the light of achieving a human purpose is a necessary component of life, is it appropriate to deem a terminal patient’s excruciating pain and suffering necessary? Cassell points out, “[Physicians] know that nothing can make [death] any less what it is. Nothing diminishes its profound importance in and to life, the sadness, pain, grief, and loss that may precede and almost inevitably follow death” (Cassell 77). A peaceful death does not necessarily devalue its meaning. Instead, a death without prolonged suffering achieves the comfort and closure a dying man seeks. Suffering, in this case, is indeed unnecessary. Perhaps even avoidable. Moreover, in an article published in the New England Journal of Medicine, Cassell insists that without proper understanding of the patient’s suffering, “the nature of suffering can result in medical intervention that (though technically adequate) not only fails to relieve suffering but becomes a source of suffering itself,” which worsens the patient’s quality of death (639). This suggests that acknowledging a patient’s suffering and understanding its nature are significant steps to effectively provide relief and prevent
the agony from worsening. Thus, when opponents like Callahan dismiss the belief that suffering should always be eliminated, they compel one to believe that they are incapable of fully understanding the patient’s suffering. More explicitly, they convince a proponent that because they believe suffering is essential, their attention to a patient’s suffering and motivation to reduce it may be inadequate. Therefore, one can conclude that terminally ill, dying patients under the supervision of physicians that carry Callahan’s beliefs will suffer, and for no reason at that. This sustains the belief that PAS can eliminate a dying patient’s suffering, which is in fact unnecessary, and thus, grant the patient a better dying process.

**The Right to Waive the Right to Live**

As discussed, the right to end one’s suffering frames one major aspect of the PAS debate. The other pillar of this debate consists of the right to patient autonomy and the control a terminal individual seeks during his dying process. During the course of a terminal illness that virtually determines all aspects of a patient’s dying process, the patient can desire to at least have control over his decisions. In their essay “The Role of Autonomy in Choosing Physician Aid in Dying,” Drs. Preston, Gunderson, and Mayo stress that “an autonomous decision to hasten one’s death is a profoundly important decision for a terminally ill person that involves his or her most significant values” (40-41). Suffering from a constantly deteriorating illness, patients seek to incorporate their values and practice some control with their dying process. In a 2000 study, published in the *Archives of Internal Medicine*, to explore the attitudes of the terminally ill towards physician-assisted suicide, Wilson et al. found that 75% of the patients “believed that they had the right to exercise choice and control over the manner of their deaths” (2457). This study suggests that terminally ill patients indeed feel that they should have the right to waive their right to live. Often in terminal cases, this right and quest of control amount to having the option to request PAS. Therefore, if having the option of PAS awards terminally ill patients with a much sought after sense of control and autonomy, then it makes their dying a more comfortable process.

Critics of this view may argue that the option of PAS does the exact opposite. It restricts patient autonomy. This criticism emphasizes that a respect for the patient’s right to self-determination and the acceptance of PAS are contradicting ideas that proponents always seek to link. John Safranek expresses this contradiction in his article, “Autonomy and Assisted Suicide: The Execution of Freedom,” published in the *Hastings Center Report*. He claims, “autonomous acts of assisted suicide annihilate the basis of autonomy.
and thereby undermine the very ground of their justification” (Safranek 35). Safranek suggests that empowering a physician to aid in dying results in a loss of autonomy for the patient who must now submit to physician oversight. This claim, largely shared amongst the opposition, emanates from the idea that the very action of requesting medical assistance undermines the principle of self-determination. Furthermore, Callahan stresses that the requirements that render PAS necessary also undermine self-determination. He questions, “…why must the person be suffering? Does not this stipulation already compromise the right of self-determination? How can self-determination have any limits” (Callahan 62)? Callahan points out that because the administration of PAS requires that the patient demonstrate unbearable suffering, patient autonomy is already undermined. Accordingly, if patient autonomy is undermined, how can PAS improve the dying process, a process that strongly summons autonomy? This ridicule of PAS for decreasing a patient’s self-determination renders having this option oppressive to one’s dying process.

Safranek and Callahan’s echoing concerns are plausible. Their argument that PAS increases physician involvement ties in with Salem’s earlier argument addressing the medicalizing effects PAS exerts on suicide. This counter argument, therefore, calls for a similar rebuttal. Although it is possible that increasing physician authority undermines patient autonomy, is it reasonable to overlook the increase in patient choice that the availability of the option to request PAS results in? Preston points out that “even though the autonomy in choosing physician-assisted suicide may be limited by physicians, it represents a net gain in autonomy because patients previously had no autonomy over the matter” (4). Clearly, allowing patients to choose PAS in attempts to improve their dying process is one more alternative in addition to the list of end of life care possibilities. Therefore, the scope of patient choice increases, awarding the patient with a larger sense of self-determination. Contrary to Safranek’s declaration, having this option in fact increases patient autonomy by allowing the patient to exhibit control and choose PAS in light of a terminal illness.

**Nonabandonment and Fear**

Approaching death can introduce a great deal of fear. The inevitability of this fear is expressed in numerous studies conducted to evaluate the effects of PAS on the dying process. In the study mentioned earlier published in the *Archives of Internal Medicine*, Wilson et al. also found that the majority (73%) of the terminal cancer patients believed that a system of PAS should be implemented and be used (2454). When asked why,
these patients used the fear of unbearable pain as the primary reason to validate the practice (Wilson et al. 2456). This study suggests that terminally ill patients are indeed subject to tremendous amounts of fear during their dying process. This fear includes the fear of the experience of dying, fear of being a burden to one’s loved ones, and above all, the fear of dying a painful death with an utter loss of control (Angell 15). To mitigate this fear would be a substantial improvement to one’s dying process.

However, achieving this goal requires an understanding of the profound effects physician involvement can have on one’s near death experience. Drs. Timothy Quill and Christine Cassel introduce the idea of nonabandonment – a principle that “acknowledges and reinforces the centrality of an ongoing personal commitment to caring and problem solving between physician and patient” (24). With this commitment, physicians promise to pacify their patients’ fears and continue patient care up until the patient’s very last breath. Well, sometimes this promise requires that a physician respect and deliver a patient’s request for PAS. Hastening one’s death is indeed a very delicate matter and its discussion is only possible when a patient and physician establish a comfortable relationship under the principles of nonabandonment (Quill and Cassel 33). With that in mind, having the option of PAS requires that a physician commit to not abandon his patient and further enforces the principles of nonabandonment. Transitionally, therefore, having the option of PAS, which encourages nonabandonment, lessens a patient’s fears about approaching death. Although quite complex, the effectiveness of this linear relationship between fear, nonabandonment, and having the option to request PAS can help protect and improve one’s dying process.

The discussion of abandonment is highly subjective. Opposition argues that PAS is a form of abandoning the patient; whereas proponents of PAS may argue that not employing PAS at the request of the patient is abandonment. Critics of the idea that PAS promotes the doctor-patient relationship and the promise of nonabandonment argue that “aiding a patient in dying [is in fact] a form of abandonment, because a physician needs to walk the last mile with the patient, as a witness, not as an executioner” (Foley 55). Foley argues that ultimately, by hastening the patient’s death, the physician forsakes his patient’s side and simply gives up. On the other hand, Ziegler argues that “outside of the PAS context, some doctors already abandon their dying patients” (324). He suggests that without respecting a patient’s request for PAS, the physician abandons his patient in a desperate time of need. Again, it all comes down to the wishes of the patient. However, considering both sides, one cannot ignore the profound effects merely having the option
to request PAS can have on the doctor-patient relationship. If the alternative to make this request exists, then physicians become obligated to develop a close relationship with their patients simply in anticipation of the possibility that their patient makes that request. This connection more or less ties in with idea that by providing the option to request PAS, the number of choices increases and so does patient autonomy. Similarly, if the option is available, it encourages physicians to adhere to the principles of nonabandonment – an encouragement that can be lacking otherwise. By promoting nonabandonment in a time of need, having the option to request PAS betters the dying process.

**Conclusion**

The dying process is a very complex event in a person’s life full of confusion, fear, and the desire for meaning. In the largely discussed debate on PAS, many seem to forget the very foundation of its birth; they seem to overlook the pleading nature of the request that one only makes when he is terminally ill and experiencing a very poor quality of dying. PAS offers an alternative for this kind of patient when medicine has failed him and shows promise to improve, or rather salvage, a person’s dying process. The findings of this exploration of the dying process reveal that the mere availability of the option to request PAS has the potential to considerably improve one’s dying process. Studies reported in scholarly journals suggest that many of those suffering on their deathbed make requests for hastened death and PAS, as a whole, allows a physician to eliminate this suffering, demedicalize and make one’s dying process more comfortable. Also, findings of this paper suggest that the mere option of PAS encourages patient autonomy and medical nonabandonment, not to mention better palliative care. Overall, therefore, the conclusions drawn from this exploration of the dying process suggest that PAS has the potential to better one’s dying experience.

Whereas Ziegler outlines the various improvements PAS can implement on the dying process, Callahan refutes them. With this kind of theoretical set up, conducting a thorough exploration is achievable since both authors provide arguments and counter arguments in anticipation to those arguments. The findings of this research paper are in complete accordance with Ziegler’s theory advocating that PAS demedicalizes death. However, Callahan’s theories of the negative effects of PAS on both the dying process and society are not supported by the conclusions drawn in this exploration.

Traditional medicine conflicts with the idea of physician-assisted suicide. The Hippocratic Oath, from the beginning of its institution, forbids all physicians from
intentionally allowing a patient to die. Unfortunately, however, adhering to this tradition would resemble an impediment to the growth and value of medicine and society.

Kevorkian and regulation issues have allowed digression from the original purpose of PAS, which could be a part of good medical care. With a consideration of the dying process, perhaps one day all states will realize that the opposition does not honor the wishes of those that it most likely applies to and recognize a public policy in support of physician-assisted suicide.

Bibliography


SCIENCE
The Incomprehensible Nature of the Origin of Life
Melanie Davila

That theory is worthless. It isn't even wrong!
—Wolfgang Pauli

Abstract
The demarcation between science and pseudoscience is a highly debated topic in the philosophy of science. Pseudoscience threatens to not only tarnish the integrity of true science, but also to poison the mind of the everyday citizen. Although the line between science and pseudoscience is often blurred, it is crucial that the scientific community acknowledges the presence of pseudoscientific characteristics in certain theories. Moreover, the origin of life on Earth has proved to be elusive to mankind. Although humans have attempted to answer this question for thousands of years, extremely limited progress has been made regarding the matter. In this research paper, I will confirm the widely agreed upon notion that intelligent design is a pseudoscience, but I will also propose that scientific theories regarding abiogenesis might be unscientific. Ultimately, the origin of life on Earth proves to be a subject that not even science can attain a significantly firm grasp upon.

Introduction
Debates regarding the pseudoscientific nature of theories are prevalent within the intellectual community and have shown their presence in legal issues. In many cases, it is indeed difficult to determine if an idea should be considered true science. I will argue that intelligent design is pseudoscientific. I will also argue that although theories of abiogenesis possess multiple pseudoscientific characteristics, the field of abiogenesis is merely unscientific due to its young nature.

The ability to acknowledge the pseudoscientific qualities of intelligent design and abiogenesis is crucial to our ability to differentiate between scientific, pseudoscientific, and unscientific theories in other areas of exploration. My research is significant because there is a lack of public figures who have denoted theories of abiogenesis to be unscientific in nature. It is peculiar that the human race cannot provide a reasonable response to a question that has been everlastingly pondered upon. If pseudoscience continues to become widespread, uninformed humans might lose the ability to distinguish a true scientific theory from a merely plausible thought. On the other hand, if humans begin to recognize the prevalence of pseudoscience in society they may reject science and consequently, humans will cease to appreciate the purity of true science. Genuine science is the result of the pursuit of knowledge solely for the sake of intellectual pleasure. In society, the scientist is a highly respected figure. Unfortunately, humans tend to ignore the questionable nature of claims made by scientists so one must examine scientific claims before accepting them.
In *Conjectures and Refutations: The Growth of Scientific Knowledge*, Karl Popper analyzes the progression of knowledge. Karl Popper is a well-known philosopher of science and has undeniably had an impact on our ideas of scientific understanding. In his text, Popper proposes that satisfaction of the falsifiability criterion is a critical component of science. A theory does not need to be verifiable in order to be considered scientific; however, it must be able to be proved false through scientific means. He also discusses the problematic nature of vagueness in scientific theories. Furthermore, in *Progress as a Demarcation Criterion for the Sciences*, Paul Quay discusses the several modes of progress. In this article, Quay insightfully proposes that more than one demarcation criterion is needed and suggests that lack of progress is a distinguishing characteristic of pseudoscience. Analysis of these framing texts will provide multiple demarcation criteria between science and pseudoscience.

In the first section of this text, “Science vs. Pseudoscience: Demarcation Criteria”, I will explore the roles of falsifiability, progress, and vagueness as demarcation criteria. Throughout second section of this text, “Intelligent Design as a Pseudoscience”, I will expose the pseudoscientific characteristics of intelligent design. Afterwards, in the section entitled “The Unscientific Nature of Theories of Abiogenesis”, I initiate a discussion involving the pseudoscientific characteristics of abiogenic theories (more specifically, the primordial soup hypothesis and iron-sulfur world theory), but then suggest the field of abiogenesis is currently unscientific. In the fourth section of this text, “The Implications of the Science v. Pseudoscience Debate”, I discuss the extent to which demarcation is necessary.

**Science V. Pseudoscience: Demarcation Criteria**

There are numerous distinguishing characteristics of science, including falsifiability, measurable progression, and the presence of theories without excessive vagueness. Falsifiability is a more reliable criterion for demarcation than verifiability. According to Popper, it is not problematic to “obtain confirmations, or verifications, for nearly every theory—if we look for confirmations” (36). A proponent of a scientific theory will have difficulty remaining unbiased in their methods of research and may produce fallacious results. Therefore, the confirmation of a theory is an unreliable method of demarcation simply due to the innocent yet detrimental tendencies of human nature. Pseudoscience is “not an impartial search for truth, but rather the validation of a claim, a fixed idea, supportable only by misuse or distortion of any relevant data” (Ecker 171). Pseudoscience aims to be verifiable and neglects the fact that humans are imperfect and
can only confirm theories through imperfect means. Pseudoscience is problematic because it provides society with a false impression of what true science is and suggests that scientific discoveries are the ultimate truth. The falsification of a theory is more reliable since the theory will most likely be examined by scientists with contradicting perspectives. The scientists attempting to falsify a theory may not be free of bias; however, a strong sense of contempt for a theory can cause a scientist to strenuously work towards a successful falsification. Moreover, falsification is also a better criterion for demarcation than verifiability since scientists do not claim to discover the truth.

It is important to note that although falsifiability is a prominent characteristic of science, it is not a sufficient lone criterion to distinguish between science and pseudoscience. For example, Rothbart cunningly suggests that an “account of an Alice in Wonderland universe purportedly describes certain specific events and therefore is falsifiable” (95). Such an absurd notion is obviously not scientific. In order to be deemed strongly falsifiable, a theory should be not only falsifiable in principle, but also falsifiable in practice. A theory does not necessarily have to be falsifiable at the present moment in order to be considered falsifiable. Not all theories that are only falsifiable in principle are pseudoscientific or unscientific. Nonetheless, the capability of a theory to be falsifiable in both principle and practice may indicate the presence of a stronger science than the ability of a theory to be falsified only in principle. It is simple to comprehend why falsifiability cannot be used as a lone criterion for demarcation.

The line between falsifiable and unfalsifiable theories can be difficult to clearly define under some circumstances. Albert Einstein’s theory of general relativity is undoubtedly a strongly falsifiable theory. The theory of general relativity proposes the concept of spacetime curvature (Ni 914). Among the most classic attempts to falsify the theory of general relativity is the examination of the perihelion advance of Mercury (Ni 902). This test demonstrates general relativity’s falsifiability since scientists are able to use the theory in order to calculate a precise measurement of the advancement of the perihelion that is attributable to the forces of general relativity. Scientists can then attempt to falsify the theory of general relativity by comparing the calculated values to the observed values. Fortunately, the value regarding the perihelion advance of Mercury that is calculated by general relativity is in agreement with the observed value. On the other hand, the philosophical theory of nihilism is not falsifiable. Nihilism suggests that life has no meaning and that “in our boredom we know ourselves as nothings” (Popper 194). According to Popper, this theory is easily classified as unfalsifiable because the
The status of falsifiability of the theory of evolution is questionable. Unlike the predictions made by the theory of general relativity, the predictions made by the theory of evolution cannot be tested in such a straightforward manner. If the fossil remains of a rabbit were found in the sediment layers of the Precambrian, the theory of evolution would essentially be falsified (Godfrey-Smith 72). Nevertheless, it would be impossible to ensure that all of the sediment layers of the Precambrian were studied and that the rocks were correctly dated in the first place. One would also have to accept the fact that some species that lived during the Precambrian may have decayed before they became fossilized. Thus, falsifiability should not be used as a lone demarcation criterion.

Progress is a defining characteristic of genuine science. Progress can occur by cumulation, complication, and refinement (Quay 156). Cumulative progress is characterized by the construction of new theories and the collection of old theories. Progress by complication necessitates the seamless integration of old theories into a newer one that encompasses their essences in an innovative manner. Basically, progress by complication ensues when new knowledge is integrated with old knowledge. Progress by refinement is the continual growth in precision of observations (Quay 156). By analyzing progress, a scientist will be able to comprehend the limitations of a theory. According to Quay, the progress of the sciences is “the increasing gap of, or the approach towards at least partial truth about and understanding of, the empirical world” (158). Therefore, a scientific theory must make testable predictions that aim to encourage the acquirement of knowledge. In order to support the gaining of new knowledge, a theory must attempt to make novel predictions that will enrich our understanding of the world. The presence of these types of progress, along with the presence of other demarcation criteria, is a strong indication that a theory is scientific.

The use of excessive vagueness and ambiguity is a distinguishing characteristic of pseudoscience. The presence of vague language in a notion is an indication that its proponents are trying to validate the concept. By making a theory vague, scientists are able to minimize the risk of their theory being refuted. Simply put, in order to “escape falsification they [destroy] the testability of their theory” (Popper 37). When vague jargon is used in a potential theory, its proponents are able to stifle opposition with ease. For instance, the excessive amount of ambiguity in astrology, an obvious pseudoscience, facilitates the manner by which its proponents can defend its notions. According to Popper, astrologers typically “predict things so vaguely that the predictions can hardly
fail: that they become irrefutable” (37). Simply put, astrologers use vague descriptions in order to escape falsification. Experiments conducted in order to test vague theories provide little value to the scientific community because the results of these experiments cannot be deeply understood. Ultimately, vague terminology weakens not only the testability of theory, but also the value of the tests conducted upon it.

**Intelligent Design as a Pseudoscience**

Intelligent design is a theory regarding the origin of life on Earth. According to intelligent design, an omniscient creator is responsible for all of the intricacies of life. The notion has several conclusions regarding nature, but the most prominent is “the concept of ‘irreducible complexity’” (Collins 182). This theory avoids specifying a specific creator; however, an abundance of its proponents believe the creator to be the God of Christianity.

During his lifetime, Henry Morris was a young earth creationist and one of the founders of the Institute for Creation Research. In their text, Harrold and Eve oppose the view of Morris regarding integration of intelligent design into the public educational curriculum. Morris believes that science is a pursuit of the truth and since intelligent design seeks to uncover the truth regarding the origin of life, it is science. However, Harrold and Eve refute this idea by indicating that “science is not a search for ‘truth’ but the proposal and testing of hypotheses that seem in accordance with empirical observations” (13). Throughout his argument, Morris neglects the fact that scientists never claim to discover the truth, but instead propose hypotheses that can be readily tested. Scientific realists, who believe that scientists do aim to discover the truth, would still have objections to Morris’ claims. Not everything that seeks to uncover the truth is scientific. For example, philosophy strives to discover the truth, but it is most definitely not science. Popper suggests that the “criterion of the scientific status of a theory is its falsifiability, or refutability, or testability” (37). Intelligent design exhibits the pseudoscientific quality of being unfalsifiable because we cannot falsify the concept of irreducible complexity.

In the fairly recent Kitzmiller v. Dover Area School District case, the court ruled that intelligent design is “a ‘mere relabeling of creationism’, and not a scientific theory” (Lee 583). The court case was sparked when a group of parents argued that a statement required to be read to students in a ninth grade biology class was unconstitutional. The statement regarded “gaps in evolution theory with specific reference to ID as an ‘explanation of the origin of life that differs from Darwin’s view’” (Lee 582). Intelligent
design, undeniably parallel to religious creationism, cannot be falsified and is therefore, a pseudoscience. Throughout the history of human existence, numerous gods have been fabricated in order to enlighten humans with knowledge regarding unexplored territories. When religious leaders provide a perpetually changing “God of the gaps,” or omniscient being, that serves only to answer what science cannot answer, they run a “huge risk of simply discrediting faith” (Collins 193). In some cases, members of the religious community manipulate their beliefs in order to avoid adopting ideas that are not in agreement with scientific knowledge. For instance, when common events such as the sun rising became demystified, the popularity of religions that involved “sun gods” began to slowly decline. Science does indeed change, but it adjusts in order to answer more questions than it did before and in order to account for new evidence. Religion, on the other hand, often adjusts in order to answer different questions and disregards new evidence.

Unlike genuine science, intelligent design is based solely on faith. Faith in religion, and intelligent design, is by no means a horrendous concept since it shows the wondrous capability for undying devotion that humans can possess. However, it does not provide a scientific foundation because skepticism is encouraged in science. This fundamental difference between true science and religion (arguably the foundation of intelligent design) allows for the independent progression of knowledge in genuine science.

Pseudoscientific notions are often presented as valid scientific claims; however, pseudoscience does not always have cruel intentions. Admittedly, some pseudosciences such as astrology and parapsychology serve to exploit humans for financial gains. Nonetheless, most pseudoscience is merely the result of presenting information in an insufficient manner. Proponents of intelligent design often argue that it is science because it is plausible. Intelligent design is by all means plausible, but “a statement may be pseudoscientific even if it is eminently ‘plausible’ and everybody believes in it” (Lakatos 1). Enthusiasts of intelligent design often ignore that probability is of greater significance than plausibility in the realm of science.

Direct empirical observation is undeniably a useful tool of scientific study, but it is not thoroughly necessary in order to develop a scientific theory. In Scientific Creationism, Henry Morris acknowledges some of the difficulties of studying the origin of life scientifically. For instance, he claims, “Creation is not taking place now, so far as can be observed. Therefore, it was accomplished sometime in the past, if at all, and thus is inaccessible to the scientific method” (5). By making such an assertion, Morris is
committing a fundamental error. He is unintelligibly adapting the beliefs of radical empiricists such as John Locke, George Berkley, and David Hume. However, Morris’ claim is more poorly constructed than the views of the radical empiricists because he does not allow for abductive or inductive reasoning (which will be discussed shortly). According to Willer, the empiricists have asserted that “man gains all knowledge through sensory experience” (7). However, this notion neglects the fact that not all empirical evidence is currently observable. Ecker suggests that although “direct observation is a scientific ideal, in practical terms science must often depend on indirect observation or inference” (172). For example, we cannot physically observe gravity; however, we can undoubtedly observe its effects. Therefore, the presence of gravity is empirically supported even though it is not observable. The absence of empirical observations does not indicate the presence of a pseudoscience.

Scientific theories are often formulated based upon their agreeability with prior scientific knowledge and the ability to seamlessly integrate the new knowledge with prior knowledge. Inductive reasoning results in the production of general rules from a collection of specific instances (Garcez 26). Therefore, laws can be formulated from recurring patterns. Moreover, abductive reasoning allows scientists to use inferences in order to affirm a result (Garcez 26). Both inductive and abductive reasoning promote assumptions and harsh generalizations. Although inductive reasoning and abductive reasoning are not flawless methods, their presence in the scientific method is undeniable. It is fairly alarming that scientific progress depends upon the ability to integrate new knowledge with previous knowledge. According to Rothbart, many scientists attempt to ward off refutations by proposing “vague or unintelligible hypotheses, but at the cost of producing hypotheses that are trivially true in relation to accepted background knowledge” (Rothbart 100). The fact that integration with prior scientific knowledge is a significant aspect of the scientific method is distressing to scientists attempting to advance the status of a theory. There is a high probability that the gaining of scientific knowledge has been hindered due to the fact that some scientists are proposing vague theories.

The Unscientific Nature of Theories of Abiogenesis

There are a significant number of theories of abiogenesis, but two of the multitudes are prominent. The primordial soup hypothesis and iron sulfur world theory both have a few aspects in common. According to both theories, the early earth was extremely hot and had a reducing environment with little or no free oxygen. Lightening and volcanic
activity provided the ambience with a multitude of energy (Folsome 48). The main gases in the atmosphere were “nitrogen, carbon monoxide, hydrogen, and water vapor” (Folsome 56). In the primordial soup hypothesis, these molecules accumulated on rock or clay surfaces that contained enzymes necessary for catalysis (Ponnamperruma 25). On the other hand, the iron sulfur world theory proposes that life originated in hydrothermal vents in the ocean floor that protected the early life from potentially dangerous meteorites (Stein 998). Notably, both theories fail to explicitly discuss how these non-living chemical precursors aided in the origin of life.

Although the theories of abiogenesis may seem wholly scientific, they possess pseudoscientific qualities since there is a high presence of vagueness in the theories. The theories do indeed suggest that amino acids and proteins originated from nonliving chemicals.

However, beyond this point the details become quite imprecise and arguably nonexistent. As Collins contemplates, “How could a self-replicating information-carrying molecule assemble spontaneously from these compounds?” (90). Theories of abiogenesis fail to propose a solution to the main question of interest. Neither the primordial soup hypothesis nor the iron-sulfur world theory explicitly discusses how nonliving materials became living, and essentially, how life originated on Earth. Slightly vague explanations in a theory are reasonable since science does not seek to discover the truth; however, vagueness should be used minimally. Vagueness exposes the incompleteness of a theory. Yet, a theory being incomplete does not always signify the presence of a pseudoscience. Factors such as the age of the theory and the presence of other pseudoscientific characteristics must be taken into account when demarcating. Nonetheless, there is currently an absence of a “comprehensive abiogenic hypothesis” (Stein 996). When a theory fails to propose a comprehensible solution to the question it seeks to explore, the theory is too vague. The fundamentally unclear nature of theories of abiogenesis undeniably poses an elementary quandary.

Compared to genuinely scientific theories, such as the theory of general relativity, theories of abiogenesis are not strongly falsifiable since they are only falsifiable in principle and not in practice. When a theory makes a sufficient amount of valuable predictions, it increases its ability to become falsified. Therefore, genuinely scientific theories should attempt to make explicit predictions in order to satisfy the falsifiability criterion. For instance, the theory of general relativity predicted the phenomenon of red shift. This phenomenon proposes that light coming from an object will shift towards an
increased electromagnetic wavelength. Basically, the light will appear redder to an
observer. Pound and Rebka confirmed the red shift phenomenon through the use of the
Mössbauer effect (Ni 906). Theories of abiogenesis are weakly falsifiable because they
do not make explicit predictions. They only predict that life on Earth arose from
nonliving molecules such as nitrogen, carbon monoxide, and hydrogen (Folsome 56).
Testing this vague hypothesis merely allowed scientists to create nonliving proteins.
Variations of the experimental conditions have allowed scientists to generate differing
nonliving proteins. Essentially, abiogenesis has indeed made predictions; however, these
predictions are not explicit enough and the testing of these predictions does not provide
results as promising as the results from the testing of the red shift phenomenon. There is
no counterpart in abiogenesis to general relativity, where we are able to empirically
demonstrate the strength of the theory. Theories of abiogenesis are only weakly falsifiable
due to the lack of explicit predictions proposed; however, one must frankly
consider the fact that this field of study may not be in the position to make such
predictions at the current moment.

Since multiple ambiguities still exist regarding the environment of the early Earth as
well as the chemicals present in its atmosphere, it is not possible to construct a valuable
experiment regarding abiogenesis. Folsome insightfully asks, “How can we conduct
meaningful simulation experiments if we are unsure of the composition of the starting
atmosphere” (59)? Since theories of abiogenesis are immensely vague, experiments
performed regarding the subject will not provide the scientific community with valuable
knowledge. There is indeed a possibility that humans will acquire the means to disprove
intelligent design and abiogenesis in the future, but we do not currently possess these
means. One must consider that although falsifiability is a reliable demarcation criterion,
when used as a sole criterion, it is insufficient for distinguishing mature sciences from
protosciences (Quay 154). Therefore, even though abiogenesis is only weakly falsifiable,
it cannot be labeled pseudoscientific nor unscientific by the mere use of one criterion.

Abiogenesis shows a significant lack of progress in comparison to genuine sciences.
Since the theories surrounding abiogenesis are exceedingly vague and incomplete, there
has been little precision in the observations provided by experiments. Collins remarks,
“No current hypothesis comes close to explaining how in the space of a mere 150 million
years, the prebiotic environment that existed on planet Earth gave rise to life” (90). He
further clarifies that multiple hypotheses have been proposed, but “their statistical
probability of accounting for the development of life still seems remote” (90). Since little
is known of the conditions of the early Earth, experiments regarding abiogenesis rely more on plausibility than probability.

Researchers of abiogenesis undoubtedly put much effort into researching the topic; however, they have been unsuccessful in creating a truly useful theory. Scientists have not been able to create life by manipulating the essential chemicals of the primordial soup in an environment plausibly similar to that of the ancient world. By experimenting with chemical compounds such as carbon dioxide, methane, and ammonia in an environment with no free oxygen and a high amount of energy, scientists have merely been able to generate amino acids (Ponnamperuma 78). Many of the amino acids formed “do not occur naturally in biological material” (Ponnampereuma 78). Since such peculiar amino acids were formed, the scientific community has failed to understand the nature of the amino acids they have indeed generated. Therefore, theories of abiogenesis have not undergone progress by refinement because there has been no growth in the precision of the observations. Researchers of abiogenesis may claim that their field of study is making progress because the observations made in the laboratory have been repetitive. However, repetition fails altogether as a criterion for science (Quay 163). This is due to the fact that the repetition of a scientific event would imply “neither self-contradiction nor falsification of anything known to be true” (Quay 163). Theories of abiogenesis cause scientists to believe they are making progress on one foot when in reality they have failed to “remove the other foot from the cave” (Harrold 146). The field of abiogenesis exhibits the same lack of progress that many pseudosciences demonstrate.

Scientific accounts of the origin of life, including theories of abiogenesis, are fairly recent. According to Cyril Ponnamperuma, “The study of the origin of life, until recently, has been relegated to the realm of metaphysics and philosophy” (12). Science is inexperienced in dealing with the matter of the origin of life. People are thoroughly correct when they claim that life has not been created in a laboratory, but one should consider that research in abiogenesis is young and nature “has had a four-billion-year head start” (Ecker 14). The most sophisticated experiment done regarding abiogenesis was the Miller-Urey experiment which occurred a little over half a century ago. Since the study of abiogenesis has only been present for fifty seven years, we cannot judge its lack of progress in such a harsh manner. Furthermore, we cannot be exceedingly critical about the presence of other pseudoscientific aspects that it possesses. Therefore, abiogenesis is not currently pseudoscientific, but instead unscientific. Unscientific notions are distinguishable from incomplete science because they exhibit a greater multitude of
pseudoscientific traits compared to merely incomplete science. Science is a function of time only to an extent. Therefore, a new field of study can indeed be scientific if it does not exhibit multiple demarcation criteria of a pseudoscience. It is difficult to provide a time limit for the progress of a theory. However, it would be reasonable to propose that if abiogenesis continues to provide the scientific community with such little value for another five hundred ears and continues to exhibit multiple criteria of pseudoscience, it will become pseudoscientific.

**The Implications of the Science V. Pseudoscience Debate**

Theories of abiogenesis are often regarded as science without hesitation. On the other hand, it is widely acceptable that intelligent design is a pseudoscience. When carefully considered, both of these accounts for the origin of life have pseudoscientific features. Many people believe that the pseudoscience should not be alarming since pseudoscientific arguments are only effective when directed to the scientifically illiterate. However, the presence pseudoscience is unfortunate because there is an enormous amount of scientifically illiterate beings in society (Ecker 59). Scientific illiteracy facilitates the ability for pseudoscience to become widespread. If pseudoscience continues to become widespread, society may begin to stop appreciating the rich value of true science. Consequently, scientists may find it difficult to obtain the funding necessary to pursue a legitimate scientific experiment. Scientists are arguably one of the last remaining figures that society trusts without much hesitation. If pseudoscientific beliefs continue to plague society in an excessive manner, humans will begin to associate science with a negative connotation. An intellectual catastrophe would arise if the pursuit of scientific knowledge ceased due to a thoroughly preventable mistrust.

Demarcation between science and pseudoscience is essential, but demarcation between scientific and unscientific theories has the potential to become slightly superfluous. Science is perpetually changing as our knowledge of the world continues to expand and the capability to research more areas continues to grow. Therefore, the scientific community should inform society of blindingly obvious pseudosciences such as astrology while continuing to explore all realms of interest, whether they seem scientific or unscientific. No idea should be completely extinguished because the unscientific notions of today may become some of the most elegant and fruitful scientific theories of the future. The beauty of science is that it is an everlasting quest for knowledge that asks more questions than it answers.
Bibliography


**Works Consulted**


Matters of Antimatter: Its Troubling History and Mystery  
Emily L. Buginsky

Abstract
It has become the new focus of countless science-fiction novels. It is at the center of debate for chemists and particle physicists all over the world. It has changed the way scientists view the universe. The surprising culprit: antimatter. Judging from its name, one may think it is merely the "mirror-image" of the matter we all know and see. However, it is this misconception that is the cause for all the uproar. Through simple observation, scientists can say with certainty that matter dominates over antimatter, but the reason why is unknown and quite troubling. Not only do matter and antimatter not act as "mirror-images" in the sense of a common house-hold mirror, but they display other asymmetrical behaviors as well. To the scientists who held the belief that nature is symmetrical, this is unfortunate news. The following paper will explain the differences between matter and antimatter, as well as map out the timeline from a supposed initial state of equilibrium between matter and antimatter to the asymmetry we observe today, discussing the possible routes taken in the meantime. Additionally, I will outline the types of symmetry and symmetry-breaking, relating them to the matter-antimatter asymmetry, discuss the importance of each, and explain the role that they play. Through such analysis I will ultimately reveal why scientists were so concerned with the asymmetry of antimatter, and whether or not these feelings could be justified.

Introduction
Antimatter is a relatively new topic in science, having only been found in the last eighty or so years, and only recently has it been studied more intensively. Unfortunately for the curious scientist, it appears that the more that is learned about antimatter, the bigger the mystery it becomes. Formerly, it was believed that matter and antimatter were similar, but different. What this means is that scientists believed it would have oppositely charged particles, such as protons and antiprotons, but would have the same physics behind it. If that were so, however, the universe as we know it would not exist. In fact, we probably would not exist, because when matter and antimatter meet, they annihilate each other, leaving behind two photons (Koczer). Thus, if equal laws were behind matter and antimatter, the universe would have been created and destroyed in an instant. Today, scientists say with much assurance that the universe appears to consist entirely of matter, and so the asymmetry begins here. Such a lack of equality truly bothers scientists, and I will address the reasons why that is.

I will start by giving a brief factual background of antimatter, including its unique traits and its history from the early days of the universe up until today. Then, through examining the origin and types of symmetry, we can determine how it correlates to antimatter. By exploring and applying Occam’s Razor to the debate as well, it will become clear why scientists choose the explanations that they do, and whether or not they
are justified. By definition, Occam’s Razor should not be a scientific law, but rather a rule of thumb, and I will argue that it should remain just that, despite the fact that some scientists grant it more worth. To unearth why antimatter and its asymmetry were such daunting discoveries, as well as to find the appropriate usages of Occam’s Razor would not only help to paint a better picture of our universe, but perhaps prove useful in future scientific discoveries.

**Matter’s Evil Twin**

The discovery of antimatter was speculative, as well as accidental, when scientist Paul Dirac stumbled upon it. Dirac was fiddling around with some mathematics, attempting to create a new equation to combine Albert Einstein’s special theory of relativity and quantum mechanics. This new equation, now called the Dirac equation, was able to better explain more properties of the electron. It received much credit for correctly proving some of the known quantitative factors of the electron. In 1933, he would receive the Nobel Prize for this work, which he was hesitant to accept for fear of attracting attention to himself (Quinn and Nir 42). Before contemplating his award, however, Dirac was also reluctant to announce his discovery. Aside from being an introvert, Dirac put off his findings because he noticed something quite odd. In addition to the negative charge of the electron, the equation allowed for a positively charged particle. Being that only the proton was known for its +1 charge, it seemed the obvious choice. However, the mass did not match up. As Dirac and his colleagues tried to fix the equation to fit the proton, it was becoming clearer that something else was responsible for this “mistake.” That something was the antielectron (Quinn and Nir 43-44). Dirac was cautious to announce this idea, and appeared skeptical himself, saying he still had “not yet worked out mathematically” some of the other minor factors he excluded (Quinn and Nir 44). Nonetheless, he had just opened the door to a new realm of particle physics that would only become more perplexing.

At the time of his discovery, it is doubtful Dirac knew how far his equation would take physicists. Today, we know that in addition to the antielectron, also called the positron, there are antiprotons, antineutrons, and other evil twins of elementary particles, such as mesons. More specifically, just as these matter-particles, known as hadrons, are made of quarks, their anti-partners are made of corresponding antiquarks. As expected, the antiproton has the same mass of a proton, but with a -1 charge, and made of two antiquark quarks, and one antidown quark, just as the proton consists of two up quarks and one down (Gilman). The mesons are unique, however, in the way that they are made of a
quark and an antiquark. Thus, the “anti-meson,” consists of the corresponding counterparts of each and is just a meson in itself (Quinn and Nir 94). One may wonder if we already knew about protons, why not the antiprotons? The answer is because scientists had yet to detect their existence first-hand. In fact, it was not until recently that scientists were even able to create these antiparticles in a lab, the reason being that when a particle and its counter-particle meet, they “annihilate,” and turn into two photons (Koczor). Thus, even when created in the lab, antimatter is very unstable and difficult to study. Nonetheless, the more important issue here is where all the antimatter went, and why everything appears to be made entirely of matter. Such an asymmetry has been plaguing scientists for many years. To truly understand this imbalance, however, we must first discuss exactly what symmetry is.

**Symmetry and Symmetry-Breaking**

Symmetry is an idea that has existed far longer than the idea of antimatter, and has many different variations. It started out as an idea to unify different elements and in general, it was defined as “invariance under a specified group of transformations,” which allowed it to be applied more extensively (Brading and Castellani “The Concept of Symmetry”). Eventually, it came to represent such things as unity and harmony. This gave it a peaceful, aesthetic appeal, and the idea of symmetry soon became popular in the fields of science, mathematics, and philosophy (Brading and Castellani “The Concept of Symmetry”). Likewise, the later idea of symmetry-breaking was disfavored by scientists, and such was demonstrated by the famous anecdote of a donkey called Buridan’s Ass. In short, given two bales of hay placed equidistant from a donkey on either side, the donkey will have no reason to choose one over the other, and thus will starve (Brading and Castellani “Symmetry Arguments”). While this may be a crude and unrealistic example, it is useful in discussing scientists’ reasoning behind symmetry-breaking: if there is no reason for something to go in one direction over another, it should not do anything. However, before discussing symmetry-breaking, it is important to define symmetry. In essence, there are two main types closely related to antimatter: parity and charge conjugation (Brading and Castellani “Symmetry Principles”).

Parity, often denoted P, is a type of symmetry most people are familiar with. It is the symmetry that we experience when looking in a mirror. In general, it is the reversal of left and right, where our mirror-image’s left hand is actually our right (Brading and Castellani “Symmetry Principles”). The question scientists began asking is whether or not nature can distinguish between left and right, and whether it has preference of one over
the other. As it turns out, the answer is yes. Of the four fundamental forces in nature, strong interactions, weak interactions, gravity, and electromagnetism, only the forces of weak interactions violate P-symmetry. Because the other three forces are easier to study and more abundant, the idea of symmetry violation in the fourth force was not given much thought (Ryder 154-155).

The discovery of P-violation took place in 1956 by C.S. Wu, T.D. Lee, and C.N. Yang, in an experiment involving the beta-decay of a cobalt neutron. Wu, Lee, and Yang placed the cobalt neutron in a magnetic field, and observed the direction of electron emission (Quinn and Nir 71). What they found was, when the direction of the magnetic field and nuclear spin were reversed, as in a mirror, the direction of the electron emission remained the same (Ryder 154-155). This was a clear indication of parity violation; rather than the direction of the electrons being determined by the direction of spin, it was determined by nature’s preference of one direction over another. It was rumored that previous experiments by other scientists had found similar results, but they had never been published because, like Dirac’s discovery, it was an odd result (Quinn and Nir 71). This beta-decay experiment was a major breakthrough because it was the first confirmed experiment which showed that nature can sometimes differentiate between left and right.

A second type of symmetry was introduced by Dirac, called Charge Conjugation or C-symmetry, and, rather than left and right, it transposes matter for antimatter (Brading and Castellani “Symmetry Principles”). In the same experiment responsible for proving violation of P-symmetry, C-symmetry was observed to be broken as well. In an antimatter world, positrons would replace the electrons. As a result, the currents in the wire producing the magnetic field are due to positrons, and thus the magnetic field points in the opposite direction, and so does the nuclear spin. Nonetheless, the emission of positrons occurred in the same direction as the emission of electrons in the matter-world. Not only could nature appear to distinguish and prefer one direction from another, but it apparently could discriminate matter from antimatter. Once again, charge conjugation symmetry is only broken in weak interactions, and not the other three fundamental forces (Ryder 155). As a last resort, scientists concluded that the multiplication of the two symmetries, CP-symmetry, would be conserved in all aspects of nature.

**CP-Symmetry – A Last Hope?**

After the shocking discovery of C- and P-symmetry, scientists turned to its multiplication as a last chance for conserving symmetry. In a gedanken experiment, German for “thought,” it would make sense for the two symmetries combined to call for
invariance under normal conditions (Quinn and Nir 67). Lewis H. Ryder provides the reader with a good thought experiment. If talking to an alien friend and trying to decide whether or not they lived in a world like ours or completely opposite, one would ask them to perform the beta-decay experiment. If their results were different from ours, then either their left and right are opposite ours, or they are made of antimatter. If, on the other hand, their results were the same, we could conclude that either they are matter-beings, with their left being our left, or they are made of antimatter and have different lefts and rights. In this particular gedanken, the idea of CP invariance during C- or P-violation seems to make sense. As long as both are violated, CP symmetry should still hold (Ryder 156). However, the scientists’ relief was short-lived.

In 1968, Val Fitch, James Christenson, Rene Turlay and James Cronin performed an experiment that produced unexpected results that would later lead to their Nobel Prize (Quinn and Nir 75). In an experiment with neutral kaons, or K-mesons, it turned out that CP invariance did not hold for particles and their antiparticles. In short, the experiment focused on the decay of two different K-mesons, one with a longer half-life, K_L, and one with a shorter half-life, K_S. Through complicated mathematics and observation, it was found that the K_L meson violated CP-symmetry. Bertram Schwarzchild, author of “At Last We Have an Undisputed Observation of ‘Direct’ CP Violation in Kaon Decay,” says that the only direct evidence of CP-violation was that of neutral kaon decay and the fact that the world is dominated by matter. Their relationship is tentative (Schwarzchild 17-19). Despite the still-unknown foundations for CP-violation, the important point is that it exists, and is most likely responsible for the asymmetry of antimatter.

In the Beginning…

The Big Bang Theory is the most widely-known, widely-accepted theory when it comes to describing the creation of the universe. While this theory still faces scrutiny by some, scientists believe they have accurately hypothesized the conditions for the very beginning. In general, extreme heat, density, and rapid expansion dominated the first few seconds (Quinn and Nir 3-4). At such a point, most particle physicists argue that it would only make sense that matter, antimatter, and photons existed in thermodynamic equilibrium. In intense heat conditions, photons are able to collide to form an antimatter particle and a matter particle. At the same time, annihilation was happening, turning matter and antimatter into photons, thus establishing equilibrium. Once the universe began to cool down, however, photons were no longer able to produce particles and antiparticles, and so only annihilation could occur. Since matter and antimatter always
annihilates despite temperature, and because it supposedly existed in equilibrium, it would make sense that the equal matter and antimatter annihilated completely (Quinn and Nir 63). Clearly, we now live in a matter-ruled universe. Something must have happened to cause an asymmetry in such a small time frame, and this particular something, called baryogenesis, is what worries scientists.

Within $10^{-6}$ seconds of the birth of our universe, it had already cooled down too much to produce baryons (protons and neutrons) and antibaryons from photons. If equilibrium had been previously established, the universe would have been instantly annihilated (Quinn and Nir 35). Clearly, this did not happen. While most scientists argue C- and CP-violation is the cause for our being, it is still unclear exactly what occurred during that very first second. A second theory calls for an initial imbalance of matter and antimatter, however, this theory is quickly discarded by most scientists. It probably bothers them because most of their estimates of the Big Bang theory do not require them to know exact initial conditions. If initial conditions do play a role, then other, already-accepted ideas surrounding the Big Bang must be thrown away too (Quinn and Nir 10). A final theory, which most scientists regard as science-fiction, is the existence of antimatter galaxies, far away from our matter galaxies. While the amount of annihilation and gamma-ray production that would have to occur at its borders cannot be accounted for, this theory cannot be totally ruled out, as there is still more universe to be looked at (Gilman). Nonetheless it is unlikely and it seems C- and CP-violation is something scientists had to learn to cope with.

**Simple Matters**

Now that the types of symmetries and symmetry-breakings have been discussed in light of antimatter and its history in the universe, I can begin to explain why symmetry-breaking is a daunting topic for scientists, using something called Occam’s Razor. While Occam’s Razor is not really a law, but rather a general rule of thumb, it is often applied in many fields, from science to economics, and has earned numerous definitions over its long history, each with slight nuances (Baker “Introduction”). To give a better definition of the Razor, it is often first divided into two types: parsimony and syntactic simplicity. Parsimony refers to the complexity of the idea or theory with regards to an observation, while syntactic simplicity has been synonymous with elegance and conciseness (Popper 142, 145). Together, the definition can be summed up in the following way: All other factors being equal, the simplest idea is often favored by scientists to explain a particular phenomenon. John Earman even quotes physicist Steven Weinburg as saying "Our job as
physicists is to see things simply, to understand a great many complicated phenomena in a unified way, in terms of a few simple principles" (1229). It can be said, then, that Weinburg appears to subscribe to the syntactic simplicity. Similarly, Isaac Newton, a big proponent of Occam’s Razor, deemed it Rule I in his “Rules of Reasoning in Philosophy,” taken from *Principia Mathematica*. He writes, “We are to admit no more causes of natural things than such as are both true and sufficient to explain their appearances” (Baker “Introduction”). Here, Newton is defining the Principle of Parsimony, explaining that as long as a theory accurately matches a repeated observation, complications are unnecessary. This directly applies to antimatter, and how so will be discussed in a moment. For now, it becomes a question of why people favor the Razor, and whether or not it is rightfully so.

The first justification for the use of Occam’s Razor has its roots in theology. Many theologists argued that God had created a complete and simple world. For example, light took the shortest, and therefore simplest, path when traveling (Baker “*A Priori Justifications of Simplicity*”). Thomas Aquinas, an Italian Catholic priest from the medieval times, furthers this idea by saying, “If a thing can be done adequately by means of one, it is superfluous to do it by means of several; for we observe that nature does not employ two instruments where one suffices” (Baker “Introduction”). His statement supports the idea that simple is better, where other factors are equal. Baker furthers the theological justification, explaining that theologians and scientists alike believed God created a simpler and therefore more beautiful world. While people often attempt to differentiate between science and religion, scientists such as Isaac Newton and Johannes Kepler, shared this view (Baker “*A Priori Justifications of Simplicity*”). Religious or not, this theological perspective demonstrated the high value given to aesthetics, and allowed for the gradual change into more developed, scientific justifications for Occam’s Razor.

A method for rationalizing the Razor can be seen with the idea of probability. A simpler hypothesis would be more likely to be true, given that they have fewer details to be proven true. Philosopher Karl Popper takes it even further. To define what “simpler” means, he explains that it is the “degree of universality” that determines it, because a more universal one, or one that applies to more results, can take the place of less universal ones (Popper 127). Then he writes that the simpler a hypothesis is, the easier it is to test. Moreover, the easier it is to test a particular claim, the more easily falsifiable it is. In short, simplicity implies testability, which then implies falsifiability, and falsifiability is an important criterion for scientific theories. In this sense, Popper is
arguing something other than aesthetics to defend Occam’s Razor, with something more grounded.

While it may be true that beauty is in the eyes of the beholder, scientists can usually concur with which theory is “beautiful.” To start, Andre Kukla, author of *Methods of Theoretical Psychology*, uses parts from Paul Dirac’s own works, and writes, “Indeed, many scientists…have suggested that their theoretical simplifications were motivated largely by the desire to beautify existing theories.” However, Kukla then takes on both sides of this debate. He refers to such scientists as “fanatical classicists,” due to their influence of traditional ideas, and jokes by asking where all the revolutionary “romantic theorists” went (144). However, Kukla goes on to explain the rationale as to what makes simplicity more beautiful. He says that simplicity is often preferred because it denotes two ideas: truth and utility. Concerning truth, Kukla quickly mentions the classic relationship between truth and beauty, remarking that one is embedded in the other, but then goes on to give a more logical approach (Kukla 144-145). As far as utility, he claims that the easier it is to use a particular theory, the more favored it is. He then brings Isaac Newton’s theories of motion into play. Kukla believes that even though scientists are aware that Newton’s theories do not paint the full picture, they still use them for simple calculations when they know the answer will be the same (144). Now we have a paradox. To have utility might mean to throw away the idea of truth, which in this case, would be the true theories of motion. Conversely, however, when it comes to ease of use, the methods themselves may not be true, but truth is restored, so long as the end result is correct. Depending on one’s view of truth depends on whether or not truth is maintained.

**So What’s the (Anti)Matter?**

Now that I have outlined the definitions and justifications behind Occam’s Razor, it is important to mention how it applies to symmetry, and ultimately, the matter/antimatter debate. Symmetry, in all aspects previously described, is one facet of simplicity. Just as it was argued by theologists that simplicity was a rule of nature, it was formerly believed that symmetry was also embedded in nature. And, as scientists say simplistic ideas have a greater chance of occurring, many could argue, in the case of the Buridan’s ass, that symmetry is more likely to occur than not. After all, symmetry was held in most aspects of nature. And lastly, just as symmetry represents beauty and unity, the “classical scientists” that Kukla mentions say the same about simplicity. From this train of logic, we can conclude that symmetry and simplicity can and usually do go hand-in-hand. Thus, it
would make sense that the theory which holds symmetry should also be the one favored by Occam’s Razor.

Clearly, at some point in the early universe, matter gained a slight advantage over antimatter, and created the universe we observe today. Thus, it is safe to conclude that symmetry was broken, just as it had been seen to be broken when it came to parity, charge conjugate, and the multiplication of the two. However, this conclusion did not come easily for scientists at first. Why else would Dirac be so cautious to announce his findings of the antielectron, and why else would previous results of parity-violating experiments be kept under wraps? Clearly, the whole idea of antimatter and its asymmetrical qualities was a new and perhaps scary idea. However, new ideas and theories are created all of the time, and usually they are not so hidden. Something was different about the antimatter and symmetry-breaking discoveries. That something could certainly be attributed to Occam’s Razor.

Up until recently, antiparticles had not been directly observed firsthand, due to the fact that their lifespan is incredibly short, and the creation of it calls for extreme conditions. As such, because it had never been seen, there was no reason to believe it was there until Dirac’s equation. Just as Newton had elegantly put it in his “Rules of Reasoning in Philosophy,” we should not assume any more than what we see to explain phenomena around us. Such assumptions would only complicate theories on the universe. This is the essence of parsimony. As such, when Dirac and other scientists proved beyond reasonable doubt that antimatter existed, they had to take one giant step away from Occam’s Razor. Such a step must have been difficult to make, otherwise, it would not have taken so much hesitation. Likewise, bringing symmetry back into the picture, the experimenters before Wu, Lee, and Yang must have had even more trouble taking that step, because they never formally reported their findings. Just as I mentioned that symmetry correlates to simplicity, symmetry-breaking must therefore stray from simplistic ideas as well.

While there are several justifications behind Occam’s Razor, all of which are logical, hard scientific evidence should weigh more on the scientists’ minds. As far as the theological/naturalistic rationale, just as the idea of symmetry being a law of nature was discarded, so should be the idea of simplicity being a law of nature. In many aspects, such as three of the four fundamental forces, symmetry did hold. But, for that last force, weak interactions, symmetry-breaking was unavoidable. So, while it was a good idea for the most part, symmetry cannot be considered a law of nature. Likewise, simplicity may
often work and be intuitively justified, but it is not a law, and should not be upheld as if it were. As with all theories, once it no longer applies, the theory is abandoned. So then, as symmetry being rooted in nature was reluctantly forsaken, so should the idea that simplicity is always the best choice when all other factors are equal.

Karl Popper’s view, on the other hand, makes some valid points that have their roots in something more than just pure intuition. His idea of using testability and thus probability demonstrate a greater knowledge, and most importantly, it leaves room for deviance. He never states that simpler explanations should be preferred, but just that they often are preferred due to testability, and thus have a greater chance of being correct. In many cases, both statistically and intuitively, this seems logical, and usually it works. When it comes to deviance, antimatter and asymmetry can be considered the exception to Popper’s rule. However, overall, I think it is safe to say his rule can suffice due to its rationality and room for errors, unlike Occam’s Razor itself.

Lastly, the view held by Kukla enforces aesthetics as being the culprit for capturing scientists’ imaginations. I strongly believe that it is true, and that aesthetic appeal plays a major role in scientific explanation. After all, even Dirac himself confessed scientists’ desire to beautify theories. He uses the term “classical” to describe such scientists who favor this, and rightfully so, as symmetry had been used to represent beauty since the days of Plato (Brading and Castellani “The Concept of Symmetry”). While classical ideas should be given credit for setting foundations, when other, better ideas come about, tradition should be set aside. On the other hand, going back to his reference to Newton, I can agree that utility is important, and that it does make sense to continue using his laws of motion for some calculations. However, this brings up two important issues: where do we deem it appropriate to use simple methods over complicated ones, and how do we mend the paradox on truth.

Concerning the first issue, the demarcation between when to use simple equations verses complex equations is blurry, and there probably is no definitive line drawn. The only sensible guide would be to use the complex theory, assuming it to be correct, when in doubt. This holds true in the case of Newton, in that his simpler theories predict the physics we observe on Earth, but not on a larger scale. Thus, when uncertain, it may be wiser to use the more complex theory. This brings us to the second issue of truth. Kukla presses that beauty is in line with truth. However, by using the example of Newton’s theories, where should the truth lay: in the method, or in the result? It seems as though Kukla favors the latter version of truth, but then one may ask why should we then bother
finding new and better methods if the result is the same in many instances? Again, I admit that Newton’s methods are easier, but one must be careful in the ways that they are used. In the case of Newton’s theories, his simplistic ideas, while useful on Earth, have their limitations. All in all, depending on one’s particular definition of truth, as well as the situation, simple is not always the best choice in the absence of evidence.

All things considered, it is clear that simplicity due to Occam’s Razor is still upheld by scientists. While it originated as just a guideline and not a defined law of science, it became clear that some scientists still continue to depend on it and accept it as fact, and are wary of results that do not follow it. I can agree that it is often logical to use Occam’s Razor, but scientists should not be too concerned when symmetry, or simplicity, fails to the point that true science is discarded because of an odd result. If there are two results, one of which being the simpler, and there is no evidence of one being better than the other, then it is perfectly reasonable for scientists to apply Occam’s Razor. However, having too much faith in it, or putting too much emphasis on “beautifying theories” could have serious consequences. After all, had Dirac been too skeptical of himself, or had Wu, Lee, and Yang also never published their results, scientists today probably would not be where they are with antimatter, and possibly other aspects of science as well. In a time with such scientific advances like antimatter and large hadron colliders, it is a mystery that heavily intuitive, blurry ideas like aesthetics should have such a role in something as grounded as scientific theories. Overall, it was a hard lesson for Dirac and the other scientists to learn, but nonetheless, a valuable one that could serve as an example for all future discoveries.

Bibliography


Sensory Deprivation
Adam Waddell

Sensory deprivation has recently been integrated into the clinical setting after several decades of groundbreaking research. This emerging field has been successfully implemented as a means of treatment for various ailments ranging from drug addiction to neurological disorders. The fact that our senses have been targeted in therapies exemplifies their critical role in several domains of our psychological development. It is becoming clear that our senses are paramount in our brain’s ability to regulate internal states; mental health entails balance on myriad levels. Is there any area of our brain that contributes to our mental health more than others? Some scientists would argue that the primary motor cortex plays a critical role in our ability to empathize and subsequently bond with other human beings; social relations are a critical higher-order process within the complex constitution of our mental health. Yet it is our senses that have come to be manipulated as an effective mode of therapy to treat psychological issues; why has the primary somatosensory cortex been targeted over the primary motor cortex? A multitude of sensory deprivation techniques have emerged over the years with much success, but no technique has gained more ground than a technique that goes by the name REST or Restricted Environmental Stimulation Therapy; this mode of therapy has been shown to have positive emotional, cognitive, and neuropsychological effects in several studies. Although the localization of particular brain areas which are implicated in mental health remains daunting, research of our senses has proven fruitful. Through the implementation of sensory deprivation therapies we have come to appreciate the power of increased volition of one’s body and its effect on both perceived and realized health.

Sensory deprivation research –starting in the 1950s- cultivated several areas in the fields of physiology and psychology suitably bettering our understanding of particular areas of the brain and their roles in the constitution of mental health. In the relatively brief amount of time that this area has been studied, much has been learned in what constitutes effective mental therapy. Surprisingly, the impetus for the research in sensory deprivation was not an investigation of its potential therapeutic value but more of how it could come to be used as a tactical device in war. In Peter Suedfeld’s Restricted Environmental Stimulation: Research and Clinical Applications he states the origins of sensory deprivation research. “The immediate stimulus for the research [of sensory deprivation] was an interest in Russian and Chinese ‘brainwashing’” (Suedfeld 5). Interest in the field aggrandized shortly after WWII and peaked in the 1980s. Sensory
deprivation’s clear significance in mental processes is what made for its eclectic application in various experiments, ranging from cognitive tests to memory tasks. It wasn’t long before researchers amassed their data, and ideas of therapeutic applications were proposed. A symposium was held in Harvard in the late 1960s in which dozens of medical doctors, health professionals, and researchers talked in depth about the dynamics of the field (Heron 6). Many a research came to similar conclusions. Woodburn Heron and D. O. Hebb in Sensory Deprivation: A Symposium Held at Harvard Medical School stated that, “As a result of [sensory] isolation, the activity of receptors is reduced and…the sensory system might become ‘sensitized’” (Heron 7). Here sensitized means a lower threshold for given stimulus to cause a given response; our senses could be said to be heightened when stimulation is reduced. What was important about their findings was that a concept of “stimulus-hunger” was emerging. Further, researchers were beginning to link particular areas of the brain –such as our primary somatosensory cortex- to mental health. These immature stages of research paved the way for future studies in other areas of our brains and consequently bettered our understanding of our senses’ role in our psychological development.

When one discerns how sensory deprivation comes to be used as a form of therapy, one must investigate the role our senses play in the comprehensive makeup of our mental development: factors such as perception and subjectivity need to be taken into account. From a physical/physiological point of view, to sense is to be able to receive and process stimuli (perceive) with our sense organs and central nervous system respectively (Holle 63). The latter process is by far the more complex of the two and is what makes for the adaptability of our central nervous system. Britta Holle in Motor Development in Children Normal and Retarded states that, “To perceive is therefore a widely embracing process which requires a corresponding development of the central nervous system” (Holle 63). Our brains develop dynamically; our biological machinery must correspondingly change with the sensory stimuli in order to make it manageable within the person/organism’s psychological framework. Perception is the outcome of our brain’s analysis of a given set of stimuli. The subjective nature of perception needs to be deduced in order to fully fathom the totality of mental health, for mental health is a subjectively experience entity. Bender, the scientist who Barbara Chutroo bases her argument on, says that our gestalt/our complete subjective experience is the product of our senses’ role in our environment. “The senses guide our interplay within the gestalt” (Chutroo 410). Our somatosensory system –the bastion of our sensory stimuli- can be
looked at as a mediator between reality and our interpretation of it; it receives the full analysis of stimuli from every stimuli-receiving-region of our brains and beautifully amalgamates them into one cohesive state. When our brains lose their ability to properly receive, sort, and reproduce the surplus of stimuli in our environment then this mental cohesion is dissolved and mental disease realizes. By depriving our brains of environmental stimulation, our perception changes accordingly. The downstream effects of this modulation on our subjective experience of mental health can now be better understood within the context of our senses.

Perception of satisfaction is influenced by large-scale sociocultural and socioeconomic factors which shape higher-order drives as well as our overall sense of well being; sensory deprivation may reduce activity in an area of our brain implicated with these such things. Henry P.H. Chow in “Predicting Academic Success and Psychological Wellness in a Sample of Canadian Undergraduate Students” purports that, “There is empirical research suggesting that it is often the individual’s perceived satisfaction, rather than the absolute number of instrumental and emotional supports available, that affect psychological outcomes” (Chow 484). Dr. Chow would argue that it is the retention of quality, not quantity, of higher-order-drives which make us feel a sense of wellbeing. Such factors as goal-oriented motivation, pursuit of knowledge, and positive body perception are imperative to a proverbial sound mental constitution in creatures as complex as ourselves. However these processes are fabricated progressively throughout one’s life. Barbara Chutroo in “The Drive to be Whole: A Developmental Model Inspired by Paul Schilder and Lauretta Bender in Support of Holistic Treatment Strategies” states that, “Sensory input enables the progressive assemblage of the body/personality” (Chutroo410). In this quote Chutroo expresses her belief in a scientist named Dr. Schilder, who believes life and personality are one single entity. Being that our personality lies in the same area as higher order thoughts/drives (our prefrontal cortex), it makes intuitive sense that the two interact and grow in tandem throughout one’s life. One should note that this piecewise assembly of the mind is a delicate process; when one or more of these complex domains is decremented in some way, our entire mental stability may go askew. Chutroo and Chow’s research, amongst others, suggests that the makeup of our mental health is determined by a complex set of factors, many of which are embedded in higher order cognitive processes which must be properly cultivated throughout one’s lifetime. Sensory deprivation therapies may make for a more robust mind by potentially putting higher-order thought processes on hold; this in turn
gives the mind respite.

With the plethora of complex processes and domains that reside in our minds, emotion and social aspects appear to pervade all of them; such entities’ positions within our minds must be understood in order to fully grasp the complexity of mental health. Keith D. Markman, William M. P. Klein, and Julie A. Suhr in *Handbook of Imagination and Mental Stimulation* state, “Recent progress in cognitive neuroscience suggests a critical role for motor representations in social interaction” (Markman, Klein, and Suhr 3). What relationship does our primary motor cortex have with complex entities such as emotional and social aspects, and what is their relationship with our senses; can these areas be localized? Without our senses we are unable to process even the most basic of information; a solid perceptual foundation is necessary for such grandiose factors such as emotion and even more complex –social relations - to properly contribute to our psychological development. Also in their book, Markman, Klein, and Suhr state, “Theories of embodied cognition impart the notion that the current motor state pervades all of our cognitive states and emotions” (Markman, Klein, and Suhr 3). The very basis of our society’s interpersonal interactions is embedded in emotional experiences. Our emotions would not be properly generated and maintained if it weren’t for this highly specialized area of our brains called the primary motor cortex. A subconscious mechanism within this area recognizes body language from others and internalizes it and then replicates it; if you haven’t noticed when people talk, they mimic each others’ body language and posture inadvertently. But which area of our brain contributes more to these large-scale-factors such as social interactions, our primary somatosensory cortex or our primary motor cortex? It is obvious that both areas are critical for proper functioning on all scales; it would be in our best interest to view them as a system (i.e. the sensory motor system) within a system (our brain/mind). By viewing the two in tandem we can better understand how they contribute to our psychological health and subsequently can be manipulated in order to produce a therapeutic effect.

There is building evidence that the maintenance of mental health is implicated with one’s ability to monitor one’s behavior efficiently. Is the manipulation of our senses, subsequently modulating the activity of our sensory motor cortices, the vehicle for an increase in volitional control of one’s thoughts and hence producing a therapeutic effect? David Sallah and Michael Clark in *Research and Development in Mental Health* may infer that to understand the complex processes one needs to look at the human as an organic constituency, “An understanding of human beings is best achieved by being
thoroughly grounded in the natural sciences because men and women are essentially matter [which] has become conscious of itself” (Sallah and Clark 78). The natural sciences have provided us with much of what we know in the fields of neurology and pharmacology, but in actuality the applications are too broad to be considered efficacious. In order to ascertain an effective mode of therapy one must look not just at the organic level but the meta-physical/psychological level. Scientists like Dr. Suedfeld would argue that the therapeutic aspects of sensory deprivation might have something to do with an increase in control over one’s mind and subsequently one’s body. “We may hypothesize that the effects of REST (Restricted Environment Stimulation Therapy) on the brainstem changes the relationship between stimuli and responses so that the individual now more closely monitors his behavior, thus increasing his volitional control over it” (Suedfeld 403). What’s important here is that there is a link between an organic basis -our brain tissue- and a subjective state it experiences - perception. When one’s stimulus load is reduced this seems to allow for less energy to aggregate at our sensory cortex and thus allowing for more energy to be allocated toward brain areas implicated in self-monitoring (localized in our prefrontal cortex [PFC]). This cohesive state of self-monitoring appears to make a crucial contribution to our sense of coherence; to some degree our minds necessitate volition in order for us to subjective feel healthy.

The field of Neuropharmacology has attempted to answer what if any particular chemical composition makes up a healthy mind. There is mounting evidence that the hormonal changes associated with certain sensory deprivation techniques such as REST can be substantial; decreases in certain hormones effect particular neural networks and can induce a stress-reduced-environment. Dr. Suedfeld’s later work with Dr. Turner and Dr. Fine pinpointed particular physiological changes that occurred during their sensory deprivation therapy and purported evidence of how hormonal changes could essentially be therapeutic. “We hypothesized that by combining the reportedly profound relaxation experienced in REST with the high sensitivity of hormonal feedback regulation, we would maximize the opportunity to observe the physiological effects of REST” (Suedfeld, Turner, and Fine 72). Suedfeld and colleagues found that endogenous (made within our bodies) opioids (opium based drugs) are produced during this therapy, producing relaxation and mild euphoria. In addition two stress hormones affiliated with our hypothalamus-pituitary-adrenal axis/the HPA axis (critical brainstem areas connected to glands on top of our kidneys), ACTH and cortisol, were significantly decreased after administration of the REST therapy. Dr. Carlson and colleagues found similar hormonal
responses when meditation-like-therapy was induced to patient under stress (Carlson et al 448). They found that, “[Mindfulness-based stress reduction] program enrollment was associated with enhanced quality of life and decreased stress symptoms,…and resulted in possibly beneficial changes in (HPA) functioning” (Carlson et al 448). This data suggests that the decrease in production of particular hormones from our HPA-axis produces stress reduction—a desired effect of many a therapy. Further, in this stress-reduction-therapy it is theorized that there may be a sort of reformatting of the connections of this brainstem area (the HPA axis) with a higher order control center, (such as our prefrontal cortex/PFC) i.e. a strengthening of the connection between the two may indicate that there is an increase in volition of one’s hormonal circuitry. The hormone-based-physiology relating to stress-free psychological states marries biological matter with subjective outcomes; if such states that can be voluntarily controlled this would serve our health tremendously.

In order to apply a therapy (such as sensory deprivation) one must understand health and disease/illness in respect to the norm. What is normal mental functioning and is this synonymous with health remain challenging questions. Normal can be looked at from a variety of angles yet some may say the only legitimate way to define such a concept would be mathematically. But even in numbers there is a degree of misrepresentation; statistics can only be held accountable for correlations – and a correlation should never be considered a causation. In their book *Evolutionary Medicine and Health: New Perspectives* Wenda Trevathan, E.O. Smith, and James McKenna question how health officials arbitrarily define health and disease, “What constitutes the normal range of human variation and knowledge of what factors maintain normal conditions” (Trevathan, Smith, and McKenna 6). From their point of view, Trevathan, Smith and McKenna would claim that “normal ranges” of human health should be looked at from two ends of the spectrum: the proximate (immediate) causes and ultimate (evolutionary and or macro-scale factors) causes. Through these two lenses we can appreciate that people experience different baselines of stimulation and consequently experience health differently. Brown and Barrett in *Understanding and Applying Medical Anthropology* would reaffirm this latter point. “Any conceptualization of health must therefore depend on an understanding of how so-called normal states of well-being are constructed within particular social, cultural, and environmental contexts” (Brown and Barrett 5). Sociocultural factors are a significant part of one’s environment and certainly contribute to one’s mental constitution immensely by socially constructing the norm. It is therefore wise when considering the
implementation of a therapy that one takes into account factors that are above the
individual-level. Mental illness can be a result of a 10,000 year maladaptive mechanism
or from a social structure that arbitrarily stigmatizes a certain behavior and consequently
affects and individuals’ health negatively. For a therapy to be effective it needs to
address the myriad contexts in which the mind is inextricably embedded. Human beings
are the products of thousands of year of change, it is important that therapies be as
holistic as possible in their attempt to alleviate mental illnesses.

Although much has been learned as to what a healthy range is for our minds a
holistic definition of mental health remains far from grasp. The concept of mental health
is a difficult one to define for it incessantly changes. It, like most complex notions, has a
meaning that changes with time. A symposium was held by the U.S. Department of
Health, Education, and Welfare and Public Health Services in the late 1960s in which the
complexity of the concept was addressed both theoretically as well as empirically. Elmar
A. Gardner writes in *The Definition and Measurement of Mental Health*, “The absence of
mental disease is not a sufficient criterion of mental health” (Gardner 6). Mental health is
a subjectively experienced condition in which ones mind experiences cohesion/can
focus/adapt/be able to execute a set amount of tasks relative to the general population i.e.
relative to the norm/the statistical average of the population. A degree of happiness is
also integral to mental health; emotional stability is implicitly linked to this operational
definition. Many a definition exists with little avail and so it may be more fruitful to see
mental health in the form of a model. Sussie Eshun and Regan A.R. Gurung in *Culture
and Mental Health: Sociocultural Influences, Theory, and Practice* categorize all models
within a binary system, “Mental Health Models are dominated by two major approaches,
namely, the western evidence-based medical approach and the traditional indigenous
healing approach” (Eshun and Gurung 151). What’s important in this statement is that it
takes into account the context and belief systems/entities that heavily contribute to ones’
constitution of mental health. There is a big difference between being *healed* and being *
cured*. The latter may not be dependent on a physiological mechanism yet the experience
of the former has the capacity to produces an effect far greater than any physical/western-
biomedical remedy; psychosomatic (how our mind affects our body) effects are eerily
powerful. Sensory deprivation is such an effective therapy but only for those who
believe that it has the capacity to be efficacious. Therapies must integrate ones belief
systems if they are to properly heal a person: holistic approaches are the only proper
means of viewing a concept as enigmatic as mental health.
Mental illness is becoming a global epidemic with incidence and prevalence increasing every year; a means of an effective affordable therapy is desperately needed. Christopher J. Smith and John A. Giggs in *Location and Stigma: Contemporary Perspectives on Mental Health and Mental Health Care* claim, “In terms of prevalence mental illness has constituted the most important source of economic loss and social stress in developed countries for several decades now” (Smith and Giggs vii). Mental disorders are becoming increasingly more prevalent and consequently are becoming increasingly more stressful on society both financially and emotionally. The fact that the prevalence of mental illness is higher in developing countries implies that factors not present in developed countries are what are potentially exacerbating the problem; this may be as simple as a lack basic nutrition or as complex as social stress/cultural violence. Nonetheless hundreds of millions of people go on with their lives without the slightest bit of alleviation of their mental ailments. Through the research of Peter, J.W. Suedfeld, Turner Jr., and T.H. Fine published in *Restricted Environmental Stimulation: Theoretical and Empirical Developments in Flotation REST* this group of individuals purport that, “It appears that there is a real need for effective, reliable, and cheap psychological method to cope with psycho-social stressors” (Suedfeld, Turner, and Fine 43). Approximately one quarter of all adults in the United States suffer from one or more mental disorders (National Institute of Mental Health 1). Effective affordable therapies are in high demand not only in the United States but globally. Sensory deprivation techniques, such as flotation REST, may be the answer to many peoples’ prayers being that it mimics other self-administered/self regulated stress reduction therapies, like hypnosis, and are as financially affordable as they are effective. In addition the salts (magnesium based/”Epson”) used in flotation REST therapy increase buoyancy of the person’s body while concurrently providing a hygienic environment (Heron 6). Although mental health should not have a price tag, these affordable Restricted Environment therapies treat a large array of disorders: drug addiction, severe depression, and sleep disorders in addition to countless more and more to come/be discovered. Flotation REST has also shown to be beneficial to those even in good mental standing by increasing focus and consequently maximizing retention rates. The utility of this therapy is truly invaluable.

The versatility of this relatively new therapy is unmatched; sensory deprivation therapy has been used to treat sleep disorders, neurological disorders, psychological disorders, and many others. Anette Kjellgran and colleagues purport, “The results indicated that the most severe perceived pain intensity was significantly reduced, [in
addition] Flotation-REST treatment also elevated the participants' optimism and reduced the degree of anxiety or depression” (Kjellgran et al 2011). Their research also claimed that patients who underwent flotation fell asleep more easily at nighttime (Kjellgran et al 2011). If pain management and sleep can be improved this would greatly benefit those countries who suffer from high rates of chronic illness and experience a high prevalence of sleep disorders. Many Americans experience sleep problems; WebMD in “The Toll of Sleep Loss in America: Sleep Loss is Taking a Toll on Our Physical and Emotional Health, and on Our Nation's Highways” reports that one in five Americans get less than 6 hours sleep a night (where the recommended amount is 7-8 hours) (WebMD 1). Sleep affects several domains of our life and without it can greatly exacerbate stress levels. The positive sleep effects from Flotation REST could be because of its’ manipulation of our consciousness: “Flotation-REST must be regarded as a consciousness-altering method with promising potential for clinical and therapeutic use” (Norlander, Kjellgren, and Archer 161). Our consciousness is a meshwork of several contingent processes which in all likely pervade every area of our brain; it makes intuitive sense that a therapy as holistic as REST effects this entity. The particular subjective experience of the therapy varies from individual to individual. Between the hormonal and subjective effects of Flotation REST, the effectiveness of this therapy seems beyond promising. 

A method as simple as covering the eyes, plugging the ears, and floating in water has proven to be an innovative, affordable, effective means of reducing stress levels, warrant focus, and subsequently, nourishing the body and mind. How is it that such a simple method can have such a profound effect on our senses and consequently our entire perception of our mental health? It appears that through sensory deprivation, one’s higher-order-processes come to be more in a voluntary control and consequently some beneficiary downstream-effects (which most likely involves changes in hormones and brain plasticity/change) are instantiated. The psychological development of humans is a delicate and progressive process in which our senses must be able to receive and reformat an inordinate amount of stimulation; the exact biological machinery which one depends on throughout ones’ life is somehow reformatted through REST/sensory deprivation therapies. In a society such as America, stress is high, sleep is minimal, and disease is prevalent; a therapy as efficacious as sensory deprivation deserves to be allocated to as many people as possible as soon as possible. Although in its’ infant stages as a therapy, sensory deprivation has vast propensity for improvement in its applications.
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MUSIC
Musical Composition: Man or Machine?
The Algorithmic Composer
Sam Agnew

The use of computers in the composition of music is a topic of controversial debate among scholars, musicians and composers as well as Artificial Intelligence experts. Music is generally thought of as an artistic field of human expression, which is seemingly far from being related to Computer Science or Mathematics. Contrary to popular belief, however, these fields are much more related than they seem. As exemplified by composers such as David Cope or Bruce Jacob, algorithms and computer programs can be used to create new pieces of music, and are effectively able to emulate this form of expression previously exclusive only to humans. In this research, I intend to explore the use of computers and algorithms in the composition of music. I will touch on some of the key issues that are often linked with the use of computers as compositional tools, and I will explain these breakthroughs in the field of Artificial Intelligence and Creativity as well as in Musicology and other related musical fields. Computers process information algorithmically, through a finite set of logical instructions. This algorithmic process can be extended to realms outside of the computer as well, exemplified by musicians such as John Cage and his use of randomness to compose music. Further breakthroughs in the field of Artificial Intelligence range from producing new musical works or imitating the style of well-known musicians, to simpler applications such as producing counterpoint for a given melody, or providing variations on a given theme. I will discuss all of these subjects and examples as well as the philosophical implications of what it means for a “machine” to create music. Music is one of the things that is thought of as being exclusive to our kind, and the fact that there exists mechanical, deterministic machines that can create pieces of art shocks people and causes a great deal of distress in the world of scholarly musical debate.

This paper will specifically focus on determining to what degree computers are able to compose music and algorithms are able to model human creativity through musical expression. Other discussion will include debate concerning whether or not a machine can produce a piece of music that is indistinguishable from a human composition in the same style. There is also the philosophical question of determining who the “real composer” of a piece of music is, if that music was algorithmically composed, and whether or not the music is authentic. I will also define the boundaries of the filtering that a musical composer does to the output of a computer program, and whether a “line” can
be drawn to determine when a person is genuinely composing music, or simply recognizing music, created by the programmer, that he or she enjoys, and editing it. Contrary to popular belief, machines are fully capable of composing music because music is an art form that naturally lends itself well to the act of computation.

It is assumed that music is innately human and unscientific, but in fact, algorithms are anticipated in many forms of early music. Many aspects of this musical composition are very straightforward and logical, lending itself quite well to algorithmic implementation. Some composers have subconscious patterns that they follow every time they create a new composition. This implies that certain aspects of musical composition are algorithmic even for human composers. This is nothing new, and music has been this way for hundreds of years. Even during the eleventh century music was composed algorithmically, although composers of the time were most likely not aware of the mathematical relationships governing what they were doing. Guido of Arezzo, a musical theorist of the medieval era, used an algorithmic method to derive plainchant from text through ascribing pitches to vowel sounds in order to fit the music to the text (Alsop 90). This was even before algorithms were commonly thought about outside of specific uses in Mathematics. Other musical concepts used by many composers over the centuries, such as tonalism and serialism, are also highly algorithmic and deterministic (Alsop 90). The mathematical nature of many aspects of music theory allows for smooth transition to computational processes. Musicians also subconsciously, and sometimes consciously, utilize algorithmic search spaces, sets of possible musical options in this case, when they are “engaged in the act of composition,” and this is a highly mechanized thought. In this aspect, the use of a computer program would provide greater musical possibilities because “the practice of algorithmic and/or computer aided composition certainly does provide a much greater search space from which to reflect upon the place and value of optimization in their work” (Davismoon 238). This is useful in “optimizing” a piece of music, although in this case it would be more beneficial for a human and a computer to collaborate on a composition because optimization throughout an entire piece of music would seem boring to the human ear. However, this creates a great opportunity for human composers to work together with computers in order to enhance their musical creations. This collaboration goes even further because similarly to how algorithms were used to derive plainchant as previously discussed, algorithms may also be used to create polyphony to coincide with and add to that plainchant.
This use of computation is overwhelmingly apparent in the development of certain forms of polyphonic counterpoint due to the algorithmic nature of such musical techniques, and this is exemplified by the work of Adiloglu and Alpaslan's work on machine learning as it applies to two-voice counterpoint composition. This translates so well to computation because the rules of counterpoint state defined sets of instructions explaining how two musical lines can interact. These two researchers created a computer program that produces pieces of first species counterpoint, which is described by Johann Joseph Fux in his rules of counterpoint, as being the most deterministic form of counterpoint (Adiloglu, Alpaslan 301). The purpose of their research was to develop a new method of representing notes using computers. The program successfully learns the behavior of the input, and does not utilize intervals that are considered “hollow” or “boring” to the human ear, and it also generates a cadence, which is extremely common in this type of polyphonic music. How effective a machine is at producing music depends on several things, and as Adiloglu and Alpaslan have discovered through this research, “a good knowledge representation results in a strong learning capacity which is crucial for successful applications” (301). As shown by this program, music that has a set of rules to follow translates even more easily to computer composition than other styles, and this is true for other aspects of the compositional process that are more naturally algorithmic as well.

Musical form can also be considered formulaic or deterministic, which may seem obvious upon further thought because the very idea of form, and how a piece is structured, is subject to specific rules, which transition perfectly to the use of algorithms. Some composers do this intentionally, and others subconsciously fit their pieces of music to specific forms. (There are cases where a piece of music does not follow any particular form, or even has no order whatsoever in some Avant-Garde pieces, but these cases are not quite as relevant to the current discussion, as chaotic form would be even easier for a computer to simulate simply by lack of structure analysis, and if an algorithm produces this type of structure it may even be due to laziness of the computer programmer!) Musical form may be perhaps one of the most structured aspects of music, and this concept is expressed by many scholars on the subject of algorithmic composition. Historically, much writing on musical form has taken place and has also focused on compiling standard models (Collins 104). These templates make the structuring of music by computers that much easier, because they already exist and do not have to be calculated by the machine. Nick Collins describes the algorithmic nature of musical form
quite extensively, and discusses how it “reveals many areas of enrichment for algorithmic composition” (104). These specific models of musical structures relate so well to the computational process because they “support parsing and chunking of information” which “promotes their mechanizability for the algorithmic composer” (Collins 104). This concept of “chunking” and parsing information is natural to how humans and computers both process, and this creates another big similarity between the two. The similarities between the human brain and the computer allow for a transition of human creativity to an algorithmic process. These similarities make room for even more crossover between the way humans and computers both think, and this is still true for the process of composition.

Humans love to examine the natural world, which is the entire basis of scientific discovery including that of mathematics and computers, and due to their direct relationship, the use of computers and algorithms is an effective method in helping us express this natural world. Numbers have been used to represent natural phenomena for ages, and some of these same things are expressed through music. This creates an intimate relationship between musical composition and mathematical representation. Creating music using these mathematical representations comes naturally to both humans and computers. This is an intuitive thing for composers to do because “music can represent a reflection of our environment and our imagination. Therefore, there are many good reasons for creating music from the same numbers we use to understand our world,” and it is an effective form of expression because “composing music from numbers is a symbolic expression of the interconnectedness that unifies our world” (Middleton and Dowd 134). These numbers are readily processed by computers. This concept is commonly used among algorithmic composers. The use of natural series of numbers, such as the Fibonacci sequence and Markov-chains, in applications to music has produced several breakthroughs in algorithmic composition. Several programs discussed later, such as the counterpoint program designed by Adiloglu and Alpaslan as well as the Jazz improvisation machine produced by Gillick, Tang and Keller, utilize these same mathematical series to create music. Using these numbers for expression is almost the exact opposite of what would be expected of a composer. However, because it is a “machine” that is composing the music, the creative limits that a human would normally face are not placed upon the machine. Although the machine has its own “creative” limitations, due to simply executing logical instructions, it is more well suited to get the job done, and this is because these “musical systems embody particular music theories,
and these theories can extend to whichever...arrangements of musical objects their author desires” (103). The theories that these musical systems are representative of, are the same deterministic aspects of music previously discussed that translated so well to computation. The use of these mechanical characteristics of music theory, such as the concept of a key, scale, musical form, tonalism, serialism or harmony, are all well-defined structures for a computer to process. These are all aspects of music that can be processed algorithmically, and there exist many more situations in which computers easily adapt to musical composition. The problem lies in the characteristics of music that are not so readily transferable to implementation in an algorithm.

One of the greatest challenges to the field of artificial intelligence in musical composition is the fact that there are also other features of musical creativity that are harder to model for computers. Human creativity can be defined in two different contexts, the spontaneous, “genius” inspirational creativity, and the contrasting process of iterative revisions, which can be described more simply as “hard work.” The former approach is nearly impossible to model algorithmically, especially with current technology and scientific understanding, because we are not aware of the psychological processes that cause this inspiration. However, the latter “blood sweat and tears” approach to composition is much easier to model algorithmically, and this has been done numerous times. The way human composers create music is generally through a long, iterative process. This process resembles algorithmic computation, and is able to be recreated and imitated by means of computation because it is closely related to the way computers “think.” (Jacob 2) This second form of creativity is much more well suited to computers because of the defined structures that the composer follows. This has been exemplified previously by the counterpoint program, and Jacob's own work is also based off of this fact. Bruce Jacob designed a computer program that simulates a “theme with variation” type of composition. A given theme of music is entered in the program, and it then computes variations of that theme. After “composing” a new variation of the input theme, the computer then analyzes it to see whether it is good or not, and then continues with the “composition.” This very much resembles the “hard work” method of creativity. However, both forms of creativity have been modeled in some way by the work of David Cope, who is arguably the most important in terms of composition, and his work is certainly the most well known and controversial.

The work of David Cope, specifically his computer program “Experiments in Musical Intelligence,” referred to as EMI, shows characteristics of both types of
creativity described by Bruce Jacob, even though the second “genius” type of creativity is only exemplified as an after thought, as I will discuss. David Cope created EMI in order to assist himself in finishing an opera he was commissioned to do. The program's objective is to analyze a database of musical information, consisting of thousands of pieces of music from many different composers, and to recognize patterns in the music in order to produce compositions in a similar style to those in the database. Cope's intention was to have a database of his own compositions so the computer program could produce a piece of music in his own style without him composing the music himself, thus conquering his “writer's block.” However, what resulted was something much more than a Cope opera. He soon found that the program could take compositions from almost any given composer, and produce a new piece of music in the same style. Some pieces were indistinguishable from that of the original composers. EMI has produced new music in the style of many composers ranging from Bach to Scott Joplin. The algorithmic processes of EMI are very representative of the first type of creativity described by Jacob. By analyzing different compositions within a database, and finding patterns in the music in order to create similar pieces, the program demonstrates exactly what Jacob was talking about when he referred to creation through “hard work.” This seems to be a pretty intuitive concept though. The real surprise is that Cope's program indirectly exemplifies the second form of creativity as well, although not to the extent that we can say computers would be able to model this creativity. By modeling music that was composed in this way, the fact that EMI produces music in the exact style of Beethoven, or other composers, shows that computers are able to model the “genius” form of creativity. This is simply because the compositions in the database can be described in this way, and a piece that derives from those represents the same aspects of creativity, although indirectly. This may be the most popular and controversial example of this type of modeling of computational creativity, but there is more work in the field that yields somewhat similar results.

Work has also been done to model and replicate Jazz solos in the style of specific musicians, and this has proven effective at representing the types of creativity described by Jacob as well as managing to exemplify the second type of spontaneous creativity better than EMI does, although it still does not fully display that type of creativity. A team of researchers, Jon Gillick, Kevin Tang and Robert Keller, has created a computer program that successfully replicates improvised Jazz solos. This seems to be contradictory to what a Jazz solo even is. Improvisation would seemingly be impossible
to model and implement algorithmically because when a human performer improvises, it is “on the spot.” The player does not think so much about the music in his or her head, due to the spontaneous nature of the performance. However, “although a given jazz performer might not be aware of how he or she does improvise, it seems reasonable to say that ideas of what one is able and willing to play can be captured in the form of patterns or, more generally, some form of grammar” (Gillick et al 57). These patterns are discovered in a similar way to how EMI discovers musical patterns among compositions. Specific Jazz solos are transcribed, input into a database, and then analyzed by the computer program in order to produce similar improvisations. The output then represents an improvised solo in the same style of a particular Jazz musician, such as Charlie Parker or Miles Davis, in the same way that EMI produces music in the style of other composers. The produced solos can also be altered to fit any backing chord progression, in order to display the versatile nature of Jazz soloing, and how it can be modeled by a computer. Although the effectiveness of the results varied, a large amount of the improvisations produced were considered to be very close in style to the original solos. (Gillick et al 65) Several different groups of people were questioned, and most have said that the solos produced by the program are somewhat close representations of each Jazz musician. Some solos the machine produced were better than others, and were nearly indistinguishable in style to the intended composer, but other produced solos seemed to lack “direction.” This can be fixed with further programming because the work is not yet complete, but still remains relevant to the discussion. Particularly, the longer solos were of lesser quality because they lacked structure throughout their entirety, but some were still of high quality. This shows that creativity can most certainly be modeled by computers in a number of different ways. This specific example demonstrates the second type of creativity much more than EMI does, and this may be simply because of the nature of improvised soloing. Most of how the algorithm works displays the “hard work” method of creativity, but the fact that these pieces are improvisations shows that it is possible to model spontaneous creativity in some ways, although not by any means entirely at this point in time.

Even though EMI and the Jazz improvisation program both produce output that is similar to the music produced by past musical “geniuses,” this does not mean that it is easy, or even possible at this point in time, to model this type of creativity. Neither of these programs produced music that was “groundbreaking” in and of itself, because the only revolutionary aspect of the music was how it was created, and this has nothing to do
with the final product itself. Although both examples successfully displayed this type of creativity in the final results, both programs did so indirectly. The computer did not simply have a creative outburst in order to produce a musical masterpiece representing its inner emotions; it was following a specific set of instructions in order to produce the music. The algorithmic method of producing the resulting music was indistinguishable from that of creativity through “hard work,” but the results showed something deeper because in the end the music was similar to that which is produced by “genius” creativity. This is why both examples show hints at the second form of creativity, but only through the results and not the methods. The first form of creativity-through-hard-work was very well demonstrated in both cases, and has proven to be a successful way to compose music algorithmically. It is true that the genius form of creativity cannot be modeled with our current understanding of science and the human brain, as well as creativity, but this may change with time because “As computers get more powerful, they become capable of handling increasingly complex tasks” (Jacob 4). Currently, computers are not by any means able to model or replicate “genius” creativity, and it is uncertain whether they will ever be able to do this or not. Advances in the field of artificial creativity will be able to shed any light on this subject, although due to the field's relative incompleteness, it does not seem likely that computers will be able to capture the essence of “musical genius” any time soon, and this is where the limitations of algorithmic composition lie.

Along with the view that work in the field of computational creativity is incomplete, there is fierce debate among scholars concerning whether or not algorithmic composition is a valid form of musical creation, and whether or not the music produced by it is real or not. Many scholars become infuriated to hear music created by computers because machines are thought to be too mathematical and mechanical to create elaborate works of art that spawn from the deepest of human emotions. Opposed to the common definition of music, the compositions produced by computers do not stem from human creativity, as other music is said to. Music is even commonly defined as being intentional and deriving from human creation, and this is one of the main things that make music what it is. One semester I took an Intro to Music class in which the professor formally defined music in this way stating that it is not just “organized sound” because in order for music to be music, human intention must be there. This would mean that random sounds generated from the environment would not be considered music, even if they somehow produce an organization of pitches, unless of course those environmental sounds are intended by some human as music, as shown with John Cage's infamous piano piece “4’33.”
However, even if we assume this definition to be correct, it can still be argued that music produced by algorithms does indeed derive from human creation. This is because the algorithms themselves were created by a human, generally with the intention of producing algorithmic music. This clearly satisfies the presented narrow definition of music.

This type of discussion leads to many other difficult questions concerning who the “real” composer of the music is, and this particular question may stem from David Cope's work with EMI. The creator of the algorithm that produced the music may be considered the real composer, but it can be just as likely that, in the case of Cope's work at least, the original composer who's work is being modeled is the real composer, even though most of those composers have long since been deceased! Even the user of the algorithm has some influence on the composition of the final product through listening, and choosing which part he or she likes best (Jacob 3). Despite this dispute about who the “real” composer of the music is, it generally holds true that the “more closely an algorithm reflects a composer's methodology, the less question there is that the work is authentic and of the composer” (Jacob 3). Even this does not convince everybody, and the debate as to who the composer of a given piece of algorithmically composed music is remains inconclusive at this point in time. Due to certain opinions musicologists have toward computers composing music, the produced work may not even be considered music! However, this seems like a highly unlikely conclusion because it is solely based on the common biases regarding algorithmic composition.

There exists a plethora of stereotypes associated with computational composition, many of which result from a misconception of what algorithmic composition is, as well as assumptions that the reason these flaws exist is due to compositional aspects rather than features of the performance. Some consider the music produced by computers as being considered “emotionless,” “cold,” or “mechanical.” When people hear the music that they are told is produced by a computer program, they are most likely specifically listening for these aspects because that is what they would expect to hear. This view can be attributed to the placebo effect. This also goes with how we think of computers and how we think of music. Computers have no emotion because they are just logical mechanical devices, and when we combine this thought with music, we think of emotionless music. Often, the creator of a computer program that produces output, music in this case, also programs a method to hear that output immediately. This is usually a MIDI playback of the output converted into MIDI sheet music, which tends to be by far
the most effective, and quickest, playback method. It allows the composer to hear the results right away rather than transcribing it to sheet music every time. When computers “compose” music, they do not just magically start playing the music. They produce a completely logical and numerical output that must then be interpreted and converted into something coherent and meaningful. The pitch, amplitude, and duration of a note are all converted to numerical equivalents because that is how computers process or “think,” and by converting these numerical equivalents into a MIDI format or something similar to it, the programmer allows his creation to play the music it composes immediately after composing it. This requires additional computer programming, but saves time in the long run. As many people know through experience, almost anything played through a medium such as MIDI will sound mechanical and emotionless, precisely because it is being performed by a computer.

Even the greatest works of Beethoven or Mozart will sound somewhat mechanical, because of the way we will perceive it when we hear it, and this is entirely due to the mechanical performance of the music. When people address this music as emotionless, they are often talking about the performance aspects rather than the compositional aspects, at least in most cases. Computers are not experts at performing music by any means, at least not at this point in time, but that does not mean they are unable to become master composers. When a human musician performs the music composed by a computer, he or she gives the same amount of emotion to a given piece of music as he or she would with any composer. A large portion of the emotion in this aspect comes from the performer, and how the music is being played by that performer. It is true for a variety of music that a great deal of the emotion in a given piece stems from the performance of the piece. A wonderful example of this would be from David Cope's creation, Experiments in Musical Intelligence (EMI). EMI's very first composition was a piece imitating the style of a Bach chorale. When Cope originally heard the output of the program, he thought it sounded completely horrible. This was likely due to the mechanical, emotionless sound that is expressed through a raw MIDI playback. After time had passed, he had a choir perform the music, and it suddenly gained a huge variety of emotions. The song had gone from cold and emotionless to pristine and otherworldly. The very same music with a different performance medium conveyed much more emotion than it had previously because the humans performing the music provided it with these emotional characteristics.
Computers do not have emotions, at least not in the same way that humans experience them, but this does not mean that music produced by computers is incapable of displaying aspects of human emotion. It seems apparent that, although machines do not have emotions, the music that is produced by some of the previously discussed examples is remarkably similar to music produced by humans. This alone implies that some of the things computers do seem to reflect emotions that are not there. Despite the lack of emotions in the compositional process, the end result still seems emotionally driven to human listeners including myself. Extensive research in the study of computers and emotions has shown that “machines already have some mechanisms that implement (in part) the functions implemented by the human emotional system,” although this is not the same as the way humans experience emotions (Picard 10). This may be true, but even though a machine may implement aspects of emotion, this does not mean the machine has a “soul” (Picard 11). The fact that these machines have no soul also appears to be a common criticism of algorithmic composition. This is not a valid criticism because as we have seen, not all music derives from human emotions or the soul, and this is true even for music composed by humans. The formulaic characteristics of music seem to refute the thought that all music composition stems from the human soul. Perhaps the fact that a machine does not possess a soul is what makes the “genius” type of creativity so difficult to model. However, even if the lack of a soul represents difficulty in modeling genius creativity, computers are still remarkably capable of composing music through different methods, and this contributes to the ability of this music to remain indistinguishable from human compositions. This speaks to a computer's ability to appear as if it has emotions to a human being even though it does not. They are capable of the display of emotions, but not truly having these emotions.

Because of this, computers are also able to display emotions and appear to users as if they are capable of this, and they can also determine the emotions of humans based off of physiological feedback, which increases their ability to display these false emotions. Certain musical characteristics convey specific emotions to humans, due to cultural influence, and these emotions are displayed through specific properties of a piece of music. This makes the conveyance of musical emotion much easier for a computer to do because a composer does not require the specific emotions in order to produce music with those characteristics. Emotions in music are based off of our cultural perception of the given piece of music, so whatever emotions may be present in it are in fact reducible to specific traits of the music itself. This transitions to the computational process because a
computer would be able to produce these specific traits in the music easily. Through algorithmically composed music, computers are capable of maintaining "a controlled manipulation of the user's emotional state" because "experiments have shown that there are indeed representative physiological patterns for a user's attitude towards music which can be exploited in a music composition system" (Kim and Andre 269-270). Through analyzing the emotional content of humans in relation to characteristics of music, a machine would theoretically be able to produce music that displays specific emotions. This creates the illusion of having a compositional soul similar to that of a human. If algorithms are used effectively in the composition of music, it will be exceptionally difficult for a listener to be able to tell if the music has been generated algorithmically, or traditionally (Supper 52). By utilizing these specific features of music, the computer essentially begins to express emotions through music, even though the machine does not have any real feelings at all!

Despite all of the criticisms, stereotypes and biases against algorithmic composition, it has still proven to be a successful method for composing music. Several examples of programs that have successfully implemented algorithms in order to produce music, and a good deal of the music produced by these programs can be considered indistinguishable from music composed by humans. This truly shows that computers are capable for much more than what most people give them credit for, and that they can be used effectively in the arts, which is not generally thought of about computers. At this point in time, human composers are still more diverse than computers, but the fact that a computer can create thousands of pieces of music in only a few seconds or minutes simply by analyzing data and making calculations is amazing. This opens an entire new world of collaboration between humans and computers in musical composition because the use of algorithms and computers can greatly enhance a human's compositional power. This may be through optimizing a composer's current work, increasing a composer's options or even by helping the composer overcome severe writer's block as in the case of David Cope. This work has many more implications in the sciences as well. Research on algorithmic composition can contribute greatly to the field of artificial intelligence, and may help computer specialists learn how to better model the way humans think creatively. However, despite the many positive outcomes of algorithmic composition, it is destined to be "frowned upon" by traditional composers (Jacob 1). No matter how effectively a computer can model the human creation of music, traditional musicologists will always disagree with it. The fact that a machine can replicate works of art similar to the way
humans do offends a lot of people that spend their lives studying music. “There are questions one must successfully answer before one can use the algorithmic composition in a manner that escapes mudslinging” because algorithmic composition is destined for mudslinging simply based off of what it is (Jacob 13). It will be a very long time before the use of algorithms, and computers in the composition of music, will be taken seriously by music specialists outside of the world of artificial intelligence, but so far these machines have proven to be capable of being masterful composers.

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Innovative Instruction: Cooperative Debate as Regimented Improvisation
Michael Khater

Abstract
There are numerous ways in which improvisation has proved beneficial to music and art. Not only does it enhance the artist's experience, the audience also benefits from the virtues of spontaneity. But what about pedagogy? Does this creative, performative skill not require some form of extemporization? My research will show that improvisation is not only absent from today's classrooms, but it is essential to the growth and development of students in all areas of academia. However, since scripted learning does also have its own benefits, I arrive at the conclusion that improvisation is best suited for the academy in a disciplined, regimented form, allowing the students to improvise freely in a controlled setting within the limits of the class session. Seeing schooling as improvisation highlights the two-way and developing character of successful classroom procedure, makes comprehending how syllabus material relates to classroom procedure easier, and displays why teaching in itself is a creative ability.

Introduction
The process of teaching students at various levels throughout academia has habitually been considered an imaginative and creative routine. Though links to performance were initially proposed to highlight instructor originality, they have turned out to be linked instead to modern improvement endeavors headed for scripted education that stifle the creative talent of teachers. Prepared, scripted teaching is highly resistant to constructivist, inquest-based, and dialogic education methods that stress classroom cooperation. To offer insight into these systems, the “instruction as an improvisational performance” allegory described by creative writing professor Shady Cosgrove in his article "Teaching and Learning as Improvisational Performance in the Creative Writing Classroom" in the Journal of Pedagogy (Pedagogy - Volume 5, Issue 3, 2005, 471-479) must be customized: Education is improvisational performance. Envisioning schooling as improvisation emphasizes the cooperative and evolving character of successful classroom procedure, facilitates comprehending how syllabus material relates to classroom procedure, and demonstrates why educating is a resourceful art.

The Shortcomings of Current Educational Systems
While the instructor-proof educational developments of the post-World War II era have been considered a letdown for some time, novel editions of instructor proofing have acquired supporters into the new millennium, as rising numbers of academic institutions continue to employ written curricula that mold instructors into document readers. These programs frequently supply word-for-word documents that professors are strongly
advised to follow, and encompass Robert E. Slavin and Nancy A. Madden's "Success for All" (2001), Kurt Engleman’s "Direct Instruction" (1980), and Eric Donald Hirsch’s "Core Knowledge" (1987). Written instruction is predominantly popular in inner-city districts; for instance, starting in 1997 the New York City Board of Education authorized "Success for All" reading instruction in poorly performing academic institutions (Goodnough 21). Written instructor-proof programs depend neither on educators’ innovative potential nor their knowledge of the topic; the point of these curricula appears to be that if one can execute well from a scripted document, one can teach. However, critics of such curricula stress that the most valuable instructors use colossal creativity and insightful knowledge of content to do their jobs, both during preparation and from time to time while teaching in class. For instance, Kathy Simon’s "Coalition for Essential Schools" (Simon 1999) has condemned prepared teaching, arguing that successful instruction demands of teachers to identify with their students and react to them separately. Despite the fact that scripted methodologies have resulted in improvements in exam grades, critics dispute that scripted teaching highlights lower order dexterities that are principally simple to gauge with standardized exams. Supporters of creative instruction argue that "[it] leads to more insightful comprehension among students, a way of learning that is harder to assess in a quantitative fashion" (Bereiter 22). Therefore, underachieving schools are faced with two extremely dissimilar revelations for improvement. Scripted teaching methods try to teacher-proof the program by firmly denoting instructor actions, and fundamentally eliminating all creativity and qualified decision-making from the class. Inventive instruction proposes an extremely special idea: instructors are well-informed and skilled experts, and are given creative sovereignty in their classes.

The economy in our nation is progressively more based on data workers and on a “creative class,” and these trends in our economy look as if they necessitate creative instruction that stresses learning for more insightful comprehension, instead of perfecting lower-order specifics and talents (Bereiter 20). Prepared instruction is compatible with a long custom of associating education with performance. A supporter of “direct instruction” said, “It’s like actors in a play; we don’t ask the actor to write the play, but he interprets the play and presents it” (Viadero 189). The vast majority of prepared teaching is unmistakably performative: instructors stand “on stage” before a student
“audience”; the talks and peer interactions are “scripts” for the presentation; educators must “rehearse” their performances; and the instructor/performer should work hard in order to grasp the concentration of the spectators, with punctuality, presence on stage, good timing, and fervor. "The education as performance allegory pushes professors to view themselves as performers on stage, acting out a routine for their students" (Timpson & Tobin 98). This image highlights significant talents for instructors, namely timing, arrangement, delivery, tone, motion, and punctuality. Yet the image of education as performance is challenging, since it suggests a single recitalist reading from a document, with the students as the inert, submissive sideline spectators. These uses of the presentation image shrink teaching to an idiosyncratic concentration on the instructor as a performer or actor. Similar to scripted teaching, the presentation image proposes that an effectual actor could be an exceptional instructor even devoid of comprehending anything. This extreme is embodied by the renowned “Dr. Fox” speech, during which learners gave superior ratings to a skilled actor who "devotedly delivered a talk, although the speech contained deliberately pointless material—inspiring and impressive phrases and terminology pieced together from magazine articles" (Naftulin, Ware, & Donnelly 73).

In this paper I dispute that creative instruction is better perceived as improvisational presentation. Envisioning instruction as improvisation underscores the communicational and reactive originality of an instructor functioning mutually with a distinctive set of students. Specifically, valuable classroom debate is inventive and improvisational, as the course of the classroom discussion is capricious and transpires from the engagement of all contributors, both instructors and apprentices. Numerous reports have established that as instructors gain experience, they extemporize more (Borko & Livingston 89; Moore 43). For instance, Robert Yinger depicted a brilliant mathematics instructor who did not prepare ahead much at all, since every single day’s lecture and class answered to his pupils’ performance on the previous day in an improvisational way.

A New Allegory: Instruction As Improvisation

Creative education is regimented improvisation since it transpires within expansive formations and agendas. Professional teachers utilize schedules and activity arrangements more than greenhorn educators; however, "they are capable of invoking and applying these arrangements in an inventive, improvisational style" (Berliner 19). Numerous
researchers have documented that the most efficient interaction in academia maintains organization and writing in equilibrium with suppleness and inventiveness (Borko & Livingston 98; Simon 55; Yinger 37). I employ the improvisation allegory to attend to two troubles pertaining to previous employments of the presentation metaphor. First, prior presentation metaphors are inclined to suggesting an overly scripted and premeditated perception, with the instructor teaching from a draft—the lecture preparation or talk. Next, "they propose an emphasis on the educator rather than a cooperative emphasis on the whole class" (Smith 33). Both of these issues are challenging, knowing that countless modern pedagogical methods highlight the significance of the dynamic contribution of students—with inquest-based education, constructivism, assignment-based education, and cooperative learning. The National Research Council’s (1996) National Science Education draws on these tactics in stressing conciliation and cooperation in examination. For instance, in classes stimulated by communal constructivism, kids work jointly to together build their own database of facts and information—as we see in neo-Piagetian styles (Perret-Clermont 80) and in Vygotskian methods (Palincsar 198). Professors who cling to productive values are the ones most probable to be disapproving of premeditated instruction; and backers of scripted teaching are frequently hypercritical of constructivist speculation and application. In proper debate, the theme and the course of the session materialize from instructor and students collectively; the product is capricious, just as in music and on-stage improvisations. The improvisation allegory proposes a novel perception on how program configurations have much to do with classroom performance.

In improvisational performance, an assembly of performers produces a presentation without resorting to the use of a written draft or script. Certain parties focus on diminutive presentations simply a few minutes long, and others concentrate on completely unprepared recitals of an hour or more. These presentations surface from an erratic and unwritten exchange of ideas, live and before an assembly of spectators and/or listeners. Similarly, an efficient class debate surfaces from classroom discussion, and is not written by the lecture arrangement or by the instructor’s predetermined program. In an analysis of extemporized theater dialogues, R. Keith Sawyer (2003) referred to this sort of dialogue as collaborative emergence. Both class dialogue and theater improvisations are emergent since the result cannot be foretold beforehand, and they are...
collaborative since no sole contributor can direct what materializes; the result is jointly decided by each and every member.

Improvisation in Classroom Conversation

When it comes to improvisation in class debates, the fundamental perception of constructivism is that scholarship is an innovative and improvisational practice. Modern effort that stretches constructivist supposition to student teamwork envisions education as co-creation. Socio-cultural research has established the significance of social interface in groups, and has revealed that a micro-genetic concentration on extemporized communicational procedure can expose numerous insights into how education occurs. A vital topic in the socio-cultural ritual is the concentration on the collective entity before the solo self. Socio-culturalists examine the complete group as their component of investigation; cognition is “an aspect of human socio-cultural activity” instead of “a property of individuals” (Rogoff 68). Consequently, these intellectuals inspect how units cooperatively gain knowledge and build up information; in Kenneth Rogoff’s language, erudition is re-conceptualized as a “transformation of participation in socio-cultural activity” (687). Socio-culturalists embrace that units can be assumed to “learn” as groups, and that information can be an ownership or possession of a set of individuals, not simply of the individual contributors within the assembly (Rogoff 698). For instance, Edwin Hutchins (1995) acknowledged measures taken by a crew of a vessel to get into a marina, but with a wrecked navigational system that required the collective improvisation of the team. A record of their communications revealed that no single team member comprehended the entire arrangement that they had improvised or precisely why it was working at the time; therefore, the gang’s answer to the predicament they jointly faced materialized from group improvisation, and this surfacing solution could be considered a type of communal education.

In socio-cultural and societal constructivist conjecture, successful instruction ought to be improvisational, since if the class work is previously written and dictated by the educator, the students cannot collaboratively piece together their own bits of data (Erickson 282; Rogoff 568; Sawyer 27). As Frederick Erickson documented, “talk among teachers and students in lessons [...] can be seen as the collective improvisation of meaning and social organization from moment to moment” (153). Such discussion is open-ended, is not previously composed, and represents “[...] a communication among
colleagues, where each contributor can participate evenly to form the course of the interface" (Cazden 201). Classes are less improvisational when the educator dictates the course of the session, sternly regulating when learners can speak and how much of an influence their ideas or thoughts may have on the course of the lecture (akin to the case in the initiation-response-evaluation sequences studied by UCSD Professor of Sociology Hugh Mehan in his book entitled "Learning Lessons" in 1979). Courtney Cazden (2001) related this second category of classroom discussion to the conventional classroom, to distinguish it from the additionally improvisational, two-way class sessions tied to constructivist and inquest-based systems.

The socio-cultural viewpoint entails that the whole classroom is extemporizing mutually; and this perspective maintains that the greatest, most efficient and most helpful learning occurs when the class session ensues in an original, improvisational approach, as kids are permitted to test, combine forces, and contribute to the reciprocal assembly of their personal body of information. “During improvisational education, scholarship is a collective public activity, communally controlled by every participant, not simply the instructor” (Baker-Sennett & Matusov 204). During the session’s improvisation, the professor gets a dialogue going with the students, providing each the liberty to imaginatively build their individual set of data, whilst supplying the necessary essentials of organization that successfully scaffold that collaborative course of action.

In order to craft a classroom that supports more improvisation, the professor should have an adequately high quantity of pedagogical content knowledge—to react productively and originally to unanticipated student questions, an instructor ought to possess a more insightful comprehension of the information than when the professor is plainly delivering a premeditated speech or lecture (Shulman 77). An unanticipated student question frequently forces the instructor to reflect rapidly and resourcefully, calling upon and retrieving facts that might not have been considered the previous evening while preparing for this specific class; and it compels instructors to promptly and, by way of improvisation, be capable of translating their own familiarity to the issue into a figure that will speak to that individual apprentice’s degree of comprehension. Besides the topic of pedagogical content knowledge, it is not as broadly acknowledged that classroom cooperation commands the educator to competently handle collaborative improvisation. Improvisational talent is necessary in order to properly direct the
contributory facets of collective communication—taking turns, measuring and sequencing turns, evaluating the roles of participants and relationships, and measuring concurrence of both contribution and the degree of freedom of members to speak. It proves compulsory at the pedagogical material level as well—to detect and interpret links among peers and connections to the information. A superior comprehension of improvisational presentation is capable of helping us apprehend the creative and original methods that are related directly to collaborative education.

**Improvisational Colleague Cooperation**

Other than lecture sessions, IRE presentations, and introverted effort put on working out problems, several instructors utilize the method of grouping individuals, where an assembly of two to five classmates is positioned in a circular, interactive setting and assigned a problem to decipher together. In numerous situations, the group's members are given grades based on the presentation of the whole group in addition to each member's individual routine, granting them motivation to add to the students' overall knowledge. "Social constructivists think these classroom collaborations are useful since they offer a chance for the emergence of collaborative improvisation that brings about greater understanding" (Palincsar 398). In Baker-Sennett and Matusov’s (1997) account of elementary students' joint production of a play, they became conscious of the fact that when students' groups were managed by students, with no adult supervising nearby, the children regularly and instinctively improvised, forming their strategies on the fly by testing original ideas for procedures or discussion. Whenever an appealing plan materialized from improvisation, these elementary students acknowledged it and subsequently moved to a more inclusive, meta-communicative stage to discover how to incorporate the recently developing proposal into their budding joint creation. Nevertheless, once grownups contributed to the play-crafting gathering, the children never participated in the improvisational preparation and explanation. "Rather, they usually offered their convenient play scripts and drafts to their students, who then merely carried out the grownup’s screenplay" (Baker-Sennett & Matusov 201–203). Studies of this fashion propose that students "impulsively improvise collectively," but that it is not easy for instructors to discover how to run a joint improvisation in the classroom (Sawyer 34).
Regimented improvisation concedes the call for a program of study—there has to be some sort of organization to the class's routine. "Even supple, resourceful instructors have procedures and objectives for each period, and they create material for students that is set within a pedagogical structure" (Simon 95). Regimented improvisation offers us a means to conceptualize innovative educating within course syllabus-like configurations. The improvisation image or metaphor lets us ask more complicated questions; instead of simply “score or no score?” the metaphor directs us toward asking questions such as:

What types of guideline formations are suitable in what sorts of situations and matters?
How might instructors be trained to improvise successfully within configurations, when must educators stick with the script, and when must they extemporize resourcefully?

Regimented improvisation proves to be “a dynamic process involving a combination of planning and improvisation” (Brown & Edelson 4). Frederick Erickson’s (1982) study of creative and improvisational discourse in the classroom exposed that two-way talks are halfway between casual and the severe spontaneity of daily small talk. As Erickson puts it, sessions are “structured conversations,” during which discourse is principally improvisational, yet surrounded by overall assignment and contribution structures. Robert J. Yinger (1987) also said that "communicative instructing is best envisioned as composition-improvisation united" (36). During disciplined or regimented improvisation, professors narrowly improvise within a general overall arrangement. Expert theatrical improvisation always transpires within some organization. Jazz bands extemporize using the structure of a recognizable song; improvisational theater ensembles utilize extensive outlines to help present their lengthy improvisations with a general plot arrangement.

"Besides these wide general formations, improvisation is successful since all contributors have internalized several collective conventions" (Sawyer 21). Improvisation groups have advanced a broad selection of structures to support their jointly evolving performances. The significant medieval routines performed by the commedia dell’arte were extemporizations within a general scheme structure identified as a scenario. The conversation was not written down in advance; no documents have ever been recovered. On the other hand, various pieces were scripted and have been upheld; these detail the succession of scenes, which actors are to appear in each act, what occurs in that act and how it connects to the general course of the plot. In contemporary theater, general structures are fairly frequent in long-form improvisation, when groups carry out a
completely extemporized, approximately hour-long play. Though discourse and characters are not established in advance, the performers commonly select an overall agenda for the plot arrangement.

The Structures of Regimented Improvisation

The improvisation allegory suggests an overall outline within which prepared, rehearsed instructing and teaching for more insightful understanding can be acquiescent. Even when instructors are sticking to a rather rigid course outline, there is constantly some lingering requisite to improvise answers to students' questions in the classroom. Hugh Mehan (1979) discovered that even when instructors pursued conventionalized schedules in class they naturally and subconsciously improvised alternatives to the schedule in response to the exclusive demands of each unique class. When a student's reply is unforeseen, the professor must improvise in a manner that responds to the question and subsequently return to their own outline for the class. When instructors arrange collaborating sets of students, they encounter a tension well-known to improvising groups: between the requirement for pre-existing organization and the requirement to leave suppleness for collective surfacing to take place. Studies have shown that the most successful cooperating groups are the ones that are partly prearranged, in cautious ways, by the instructor (Azmitia 96). Largely successful collaborations entail some construction, but not much, and are of a nature that proves fitting to the mission of learning (Palincsar 299). For instance, the professor may constrict the group effort by teaching students within detailed conversational strategies or compelling them to pursue a specific series of actions; or "the professor may allot precise purposeful roles, like that of "facilitator," to single students" (Cohen 17–22). "Should teachers do nothing to develop a cooperative set of students, the students may promptly become uneasy as they grow to be beset by the challenges of the chore" (Azmitia 139). However, if the teamwork is excessively structured, the apprentices are barred from co-constructing their individual knowledge, therefore barring the advantages that collaboration was planned to achieve. Regimented improvisation appears to be most appropriate for formless tasks with no explicit measures or responses, when efficient communication banks on “a mutual exchange process in which ideas, hypotheses, strategies, and speculations are shared” (Cohen 4).
Educators must handle the balance involving composition and improvisation in a different way than a music or theater assembly. Instructors cannot afford to fall short for long since students' education is at stake; teachers will perhaps always be required to have more structural organization than improvisational performances. Academics concerned with education have put forth an assortment of terms for the formations utilized during regimented improvisation: pedagogical outlines, scaffolds, activity layouts, interactional practices. "Assessments of improvisational theater games and layouts could assist us to better comprehend the association among syllabus structures, class processes, and scholarship" (Sawyer 13). "The most valuable instructors are those that can successfully utilize a vast variety of degrees of organization, balancing drafts, support methods, and activity layouts that the subject matter and the students alike seem to need" (Borko & Livingston 83). These balanced answers in themselves are improvisational replies to the exceptional needs of that class. When instructors partake in course development, they take part in the formation of these guiding bodies. Due to the instructor's dynamic involvement, the structures that are produced as a result are more likely to lend themselves to restricted or regimented improvisation. During original approaches, like that of Lehrer and Schauble's web of inquiry in their Modeling in Mathematics and Science study, "course development is a highly creative process of improvisation, led by the instructor in cooperative reaction to the students" (Lehrer & Schauble 42). "Instead of being mere performers of curricula, instructors become innovative creators and engineers of curricula" (Brown & Edelson 159). Academic instruction has always involved the creative positioning of programs of study within the sited performance of a given class. The course program is a cultural apparatus, and similar to all tools of such nature, it incorporates limitations and affordances that constantly permit creative improvisation in their utilization. However, "we must better comprehend the connection between curriculum and classroom productivity" (Brown & Edelson 107). Analyzing how extemporization occurs within the structures of presentation can help us better posit this connection between academic curricula and student performance.

Conclusion

Innovative instruction is improvisational, and class discussions that encourage participation develop their value from their improvisational, two-way environment.
Didactic investigation on cooperating sets of students has begun to highlight the characteristics that they have in common with extemporizing groups: their communicational dynamics, their reciprocal nature, and the fact that successful education stems from student actions and interactions, entailing an alteration in focal point from the psychological examination of individual contributors to a joint, group stage of examination. These edification investigators have exposed that the benefits of teamwork accumulate from the intricate procedures of improvisation in-group settings.

The improvisation allegory incorporates and coalesces numerous general current descriptions of instruction, like that of the instructor as a performer, the instructor as a decision maker, and the instructor as a facilitator. Improvisational education entails invariable decision making as schedules and activity configurations are customized spontaneously to suit specific student requirements. And extemporization in education calls for an instructor who can smooth the progress of prearranged debate among peers in the classroom. Once we recognize that innovative education is improvisational, we distinguish that professors are inspired experts, calling not only on pedagogical content understanding but also on imaginative presentation skills—the aptitude to successfully ease into a collective extemporization with students.

Resourceful instruction proposes a very disparate image— instructors are well-informed and skilled experts and are given creative sovereignty to extemporize in their lectures. Individuals usually decide to become professors with this image in mind. Inventive instruction creates more insightful understanding among apprentices, a type of scholarship that is harder to quantitatively evaluate; however, meticulous pragmatic studies of the conversational procedures of cooperative discussion have the capacity to record these benefits. Putting creative instruction into practice will necessitate staid, long-standing investment in expert development and expansion for instructors and administrators, and fundamental advancements in pre-service instructor education. However, this inventive form of teaching has the potential to produce more intelligent, more motivated, and more efficient educators, and to result in students with more insightful comprehension and superior, quick-witted, and communal expertise.

The instruction as improvisational performance allegory must be extended to distinguish the joint and evolving character of analytical classroom debate. Otherwise, the image could become just another variety of prepared teaching, refusing instructors the
imaginative freedom that the allegory was originally planned to stir up. Improvisation is a
genus of staged presentation, but one in which cooperation among performers is essential.
In staged extemporization, a scene surfaces from the mutual discussion among the actors.
Likewise, in two-way classroom lectures, new information and insights materialize from
investigative debate among students. Learners and educators are mutually creative, and
peers learn how to contribute in joint innovative assemblies, an indispensable dexterity in
the data economy. The numerous parallels propose that the improvisation allegory can
assist us in understanding the vital function of creativity in educating and learning.

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FOOD ETHICS
Should Ronald McDonald Be Forced to Retire?
Austin Duong

Abstract
The paper focuses on the ethics and politics of the advertisements from fast food companies, particularly McDonald’s toward young children as consumers. It looks at various means and strategies of advertising designed specifically to children and the effect of advertising toward childhood obesity and diet choices. Using various established ethical frameworks, including the universal moral codes, utilitarianism, deontology, and reciprocal altruism, the paper looks at the corporate and consumers’ responsibility and evaluates the morality of advertising toward children based on these duties and obligations that the corporation has to fulfill. The paper ultimately answers the question of what determines the “moralization” of certain social actions and behaviors.

Introduction
Obesity in children has been pandemic in America in the past thirty years. Research has shown that the number of overweight children has doubled in the last two to three decades, including regions where an increase in Westernization of behavioral and dietary lifestyles is evident (Deckelbaum 1). Obesity is defined as an excess proportion of total body fat and obesity occurs when a person consumes more calories than he or she burns. Childhood obesity is attributed to many causes but in the eyes of the public, the leading cause is usually associated with typical fast food restaurant like McDonald’s and its marketing strategy toward children. As Morgan Spurlock, author of “Don’t Eat this Book,” points out, McDonald's marketing products includes Playlands, Happy Meal, “Meal-plus-toys packaging,” and various promotional materials such as McDoodler stencil, McWrist wallet, ID bracelet and McDonaldland character erasers, designed just to attract young children. One might question the ethical values of all these marketing strategies toward young children and its effect on childhood obesity in America. Should McDonald’s target young children? Should they be held responsible for the increasing trend of childhood obesity in America? To what extent is a company morally responsible for the way in which its customers use its products and how can a company minimize its exposure to this kind of moral responsibility? Steven Pinker in his essay “The Moral Instinct” has provided several ethical frameworks, including utilitarianism and the five moral codes (harm, fairness, authority, purity, community) that could be useful in approaching these ethical questions (Pinker 36). In addition, Paul Rozin introduces in his articles “Moralization and Becoming a Vegetarian” the concept of moralization as a
principle that “converts preferences into values, and in doing so influences cross-
generational transmission […], increases the likelihood of internalization, invokes greater emotional response, and mobilizes the support of governmental and other cultural institutions” (Rozin 67). He gives an example of how cigarette smoking evolved from a personal preference into an immoral activity as cigarette smoking harms other people and is a clearly an immoral act. With the cigarette analogy, does it make sense to moralize fast food advertisements or the fast food itself? In addition, how relevant and what are some implications and consequence if eating fast food is treated as unethical? Would the American obesity pandemic decrease or would it lead us to more omnivore dilemmas? In reality, it may not be completely important how much harm or unethical certain actions or behaviors impact that would turn on the social “moralization switch” (Rozin 67). Rather, it ultimately depends on the consumers and how they realize the impacts and consequences of these harms that would drive the final decision of moralization. Yet the decisions and realizations often ties with the consumers’ lifestyles, the producers’ power, and how the society is structured. The moralization of behaviors therefore depends on social awareness, lifestyle, political power and social conditioning.

Consumers’ Responsibility

Fast food restaurants are one of the contributors to the obesity epidemic in America, but ethically speaking, the consumers have free will and are never forced to purchase or do anything against their own will. Lewis in his article “Collective Responsibility” states that “Each of us is responsible for our own conduct, but never is one person morally responsible for the conduct of another. No one is ever ethically responsible for the conduct of another” (Lewis 3). With that being stated, the children’s obesity problem is not and should not be attributed to others. Rather, one should look at the underlying causes such as eating habits, education, and parental conditioning. This argument can be strengthened by Kant’s deontology view that states to act in the morally right way, people must act from their sense of duty. It is one’s duty to take care of oneself and one’s family first. It is one’s responsibility to eat healthy food, exercise and be conscious of what one is eating. However, the argument can be complicated by two facts. First, the children are not those who are making the purchases. Yet, the degree to which parents' purchasing decisions are based on being nagged by their children, called the “nag factor,” is quite important and the marketing industry know this (Deam 26). It is hard for parents to refuse
their children because they keep cajoling for the fast food. Second, children are not fully developed in their cognition and their judgment of what is responsible eating is far different from adult. Moreover, although one is held responsible for one’s action, but the persuasive effect from advertisements plays a key role in one’s decision. Robinson et al. conclude in their case study “Effects of Fast Food Branding on Young Children’s Taste Preferences” that “children preferred the tastes of foods and drinks if they thought they were from McDonald’s. […] Branding of foods and beverages influences young children’s taste perceptions” (Robinson et al. 792). It is obvious that children are prone to more programming and propaganda than adults and thus it would that make McDonald’s actions unethical, since there is no free will in the first place. The will of children has been depressed by Ronald McDonald and other branding effects.

**Corporate Responsibility**

Moral responsibility can be interpreted in terms of obligation or duty as Kant’s deontological view. According to this principle of duty and obligation, it can be deduced that a person is morally responsible for an injury if he or she causes it, whether intentionally or not, and could have prevented it. This is not to be confused with the point established previously that “no one is ever ethically responsible for the conduct of another” (Lewis 3). For example, one could argue that it is the parents’ responsibility to teach their children to eat healthy food, but since it is McDonald’s marketing’s strategy that contribute to the increasing obesity rate in children, McDonald’s should be responsible no matter if it is their intention to do harm or not. Furthermore, Steven Pinker mentioned about “the impulse to avoid harm” as one of the candidates for a “periodic table of the moral sense” (Pinker 8). Humans, especially children, deserved to have freedom from harm. An ethical action is the one that best protects and respects the moral rights of those affected. Humans have dignity simply because of their human nature and their ability to choose freely what they do with their lives. On such a basis, they have a right to be treated as ends and not merely as means to other ends. Given that, they have the right to be told the truth and not to be injured.

McDonald’s has their right also, but as a large corporate supplier, these rights also imply duties - the duty to respect its customers' rights and the duty to its shareholder. Both of these duties create a conflict between interests. Dubbink and Smith state: “[They] need to be administrators of duty because they are essential to the social coordination
needed to maintain the interest satisfaction of citizens within liberal political societies” (Dubbink and Smith 226). This means that corporations have to voluntarily incorporate moral principles into their decision making processes and think about how they conduct business. They need to look at the ultimate consequence of their actions and the cost to the society, not just simply the cost of production of their goods themselves. The fast food industry’s way of producing their product and services are thought of as the most efficient way to minimize cost and maximize output. However, there is no such thing as free lunch and there is always trade-off. The corporation’s burden of production cost is transferred to the society as a cost. Cheap fast food receipts will eventually result in piles and piles of medical bills, and who is going to pay for this? Is it McDonald’s? Is it the consumers whose incomes can only afford the daily meals? Or is it ultimately the tax payers’ money that eventually pays for these costs? In reality, it is the combination of all. The stakeholders theory, proposed by David Rodin, addresses the morals and values in managing an organization. It identifies and models the groups which are stakeholders of a corporation. In short, it attempts to address the "Principle of Who or What Really Counts." On one hand, in “What’s Wrong With Business Ethics,” David Rodin states that the stakeholder theory is conceived as a set of formal mechanisms for resolving and balancing conflicts of interests, and this means that they could not themselves be the subject of moral responsibilities. The stakeholders, defined by Rodin, are typically owners, managers, employees, suppliers, customers, and local communities. In relation to McDonald’s and its marketing to children, we cannot justify or evaluate whether it is ethical or not based on the interaction between these groups. On the other hand, Milton Friedman claims that corporations owe positive moral obligations only to their shareholders: “There is one and only one social responsibility of business: to use its resources to engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engages in open and free competition, without deception or fraud” (Friedman 133). In a sense, Friedman argues that since stockholders contribute their capital to corporations, it is their duty and responsibility to act as agents in advancing their interests. We can see here that the principal of reciprocal altruism encounters some conflicts. Both the consumers and the stockholders are doing favors for the corporation. So whose priority does the corporation serve first in return? Is it the consumers or the stockholders and to what extent?
To address the question, let’s look at a scenario similar to that of the trolleyology or the Trolley Problem mentioned in Pinker’s “The Moral Instinct.” Imagine there is a group of children on a bridge and below the bridge on a rail track are five largest stockholders of McDonald’s. A train is coming toward the stockholders and one has an opportunity to save the stockholders by pushing the children down the bridge to block the train. If these stockholders were to die, the whole entire McDonald’s Corporation will collapse tomorrow, and there will be no more McDonald’s in the world. However if the children were to die, only the family and friends of the children will be affected. What would one do? Is it ethical to put children’s life at risks to save any global business? Maybe it is somewhat extreme when we use the scenario as an analogy because no one is going to die immediately after a bite of the Big Mac, but in the long run, eating McDonald’s every day will expose one to serious health diseases and thus the consequence would be the same, if not worse since it creates so much more burden to the society and family than simply dying immediately. Regardless of how much profit the McDonald’s Corporation might lose because of the death of the stockholders, one should not use anybody else as a means to an end. Children are sentient beings and deserve rights and dignity, and above all, they deserve freedom from harm. Now consider a different scenario where instead of the children on the bridge, it is the Chief Financial Officer (CFO) of McDonald’s who is on the top of the bridge. Does it make sense now to sacrifice the CFO to save the stockholders? According to the fiduciary duty, isn’t it the corporation’s duty to protect its shareholders? Of course in a more general sense, the corporation has the duties to both the customers and the shareholders, but making profit does not necessarily mean that businesses and corporations have to target children. By fulfilling the duty to one entity, one does not necessarily have to violate the duties to others.

The Roles of McDonald’s Costs Versus Benefits

Judging on the principle of fairness, it is clearly seen that there is a huge leap toward McDonald’s. Pinker mentions “reciprocal altruism” as “where a willingness to be nice to others can evolve as long as the favor helps the recipient more than it costs the giver and the recipient returns the favor when fortunes reverse” (Pinker 8). Let’s take a look and compare between the profit McDonald’s has made by solely selling Happy Meals and the cost of the children whose money has helped McDonald’s grow stronger and richer. Statistics shows that by 2003, Happy Meals accounted for about 20 per cent of all
meals sold or about $3.5 billion in annual revenue. This is 40% of McDonald’s total revenue (Spurlock 150). On the other hand, what does McDonald’s provide its consumer in return? It offers the cheapness and convenience to its customers. Nowadays when both parents are working and do not get home till late, children have little choice but to eat outside and the choice that works the best are the cheap and convenient fast food restaurant. Moreover, McDonald’s food is very tasty and their customers will enjoy great satisfaction from eating. Nevertheless, in the long run, daily consumers of fast food are prone to serious health risks including diabetes, heart disease, and strokes (Deckelbaum 240). Furthermore, the children being raised in this diet will grow up with this type of food and taste reference and the effect keeps spiraling down. No wonder America can never resolve its obesity dilemma. It is obvious that there is an issue with a sense of fairness here. First, the favor does not help the recipient more than it costs the giver. The favor giver in our case is the consumers, and the recipient is McDonald’s. The givers provide huge profit to the corporate, but in return, what do they get? They get low quality and unhealthy food that predisposes them to many health risks in the long run. Of course, there is a trade-off between cost and long run effect, but in a low income family, nobody is going to think much about the future’s consequence. What is pressing the most is what to eat to survive and pass on every day, and McDonald’s knows this. In the long run, the cost to consumers is much higher than the favor the consumers give to the corporate.

In the recent years when people start associating and seeing the link between fast food restaurants and childhood obesity, fast food restaurants, including McDonald’s have been trying effortlessly to “mend” the situation. They have been donating to numerous charities and establishing the Ronald McDonald House Charities, which helps the critically-ill children in hospitals. However, does the fact that they have been trying to do good deeds in one area, such as donating to charity, counter balance for their unethical actions in other areas, such as advertising to young children? By applying the utilitarianism approach - “the greatest good for the greatest number of people,” we can evaluate the moral value of McDonald’s and its action. Utilitarianism was originally described by Bentham as "the greatest happiness or greatest felicity principle" (Bentham 4). In general, the idea is that the moral worth of an action is determined based on its value in maximizing the utility or happiness as a whole. In other words, the morality of an action, or a corporation like McDonald’s in our case, is determined by its outcome.
One might look at many positive things McDonald’s have contributed to the American society, from the way their food is designed as convenient and cheap, to the more sophisticated form such as the Ronald McDonald House Charities, which helps the critically-ill children in hospitals. In a sense, they have been trying to do more “good” and responsible marketing, including giving out calorie facts and adding in their Happy Meal menu healthier choice. In reality, is this completely true? A study “Food Industry Promises to Address Childhood Obesity: Preliminary Evaluation” by Lewin reveals hidden facts behind these “good” deeds that McDonald’s has been promoting:

Despite promises to promote more healthful foods to children, McDonald’s continues to place toys inside Happy Meals and to market toys – such as Hummer trucks – to young children. Packages of French fries and soda are illustrated with movie advertisements, and movie tie-ins appear on window posters, on gift cards, with Happy Meals, and on drive-thru signs. McDonald’s stores advertise games and chances to win prizes such as trips to Disney World. Codes on Big Macs, Large Fries, and Large Drinks offer chances to win additional prizes (Lewin 331).

In reality, for every positive step, McDonald’s takes countermeasures that could weaken efforts to promote more healthful eating. In addition to the heavy promotion, McDonald’s also capitalizes numerous leading children hospitals in America. Morgan Spurlock, author of “Supersize Me” cries out: “The top-ranked pediatric hospital in the country, Children's Hospital of Philadelphia, has a McDonald's outlet. Why shouldn't there be one in Houston?” (Spurlock 50). Sahud et al. in their study “Marketing Fast Food: Impact of Fast Food Restaurants in Children’s Hospitals” has concluded that fast food restaurants, particularly McDonald’s are fairly common in hospitals that sponsor pediatric residency programs: “Fast food restaurants are found in 29.5% of US hospitals with pediatric residency programs” (Sahud et al 2296). The restaurant’s presence in children’s hospitals correlates with increased purchase of McDonald’s food, and this leads to the belief that the McDonald’s Corporation supports the hospital financially. Thus, McDonald’s action might aim to affect the “greatest number of people” with the “greatest good,” but its “greatest good” in one area, such as charities, comes with the “greatest greed,” and maybe some time evil in other areas, such as advertising toward children. Can utilitarianism address for this? McDonald’s social behaviors actually suggest further development to utilitarianism. Doing the “greatest goods” might not be enough; rather,
doing greatest goods must have the consistency and honesty component throughout the course of actions. One should not do some good deeds just to cover up the bad deeds one is inflicting.

**Why Children?**

Judging by virtue ethics, children are thought of as pure, innocent, and sacred beings and making children as a target for marketing goods and services that can harm them is immoral. Yet, why are there still numerous advertisements toward children in our society? Haidt and Graham propose that it ultimately comes down to the society and culture that determine the degree of harm:

Because people have a sensitivity to cruelty and harm (analogous to the negative sensations caused by taste buds for bitterness), they feel approval toward those who prevent or relieve harm, and this approval is culturally codified in virtues such as kindness and compassion, and also in corresponding vices such as cruelty and aggression. Cultures vary in how much they value and emphasize (Haidt and Graham 6).

The moral agent used as an evaluation basis for ethical evaluation is consistent with certain ideal virtues that provide for the full development of our humanity. The degree of ideals virtues are provided by “cultures,” emphasized by Haidt and Graham. This explains why our society agrees to moralize cigarette smoking but has not yet moralized advertising fast food toward young children despite numerous scientific studies to prove the correlation between fast food and childhood obesity. The harm is obviously there, yet where is the virtue or “moralization?” (Rozin 67) What would it take for society to start realizing and changing its ideal virtue to certain behavior? Pinker provides an excellent answer to this question: “But whether an activity flips our mental switches to the ‘moral’ setting isn’t just a matter of how much harm it does […] People tend to align their moralization with their own lifestyles” (Pinker 35). Yes, it finally comes down to the way we live, the way we do things, and the way our society is structured. What provides the fast food industry to grow so powerful and strong is not so much because of how much revenue it makes, rather it is the consumers’ way of living and the fast-paced lifestyles structured by the society that give these fast food restaurants opportunities to exploit on young children. In short, there is a need for fast food as it is part of the way we live. It is how most children grow up in America when their parents do not have time to cook for them, and this ultimately explains why it is acceptable to advertise fast food to 144
Conclusion

The research has demonstrated clearly through the various views and established ethical theories that advertising fast food toward children is wrong and unethical since it will harm them in the long run. Through various tools of ethical frameworks as a mean of analysis, advertising fast food to children has shown to violate the universal moral codes, human virtue and obligations. Yet, advertising toward children remains not too much of a concern to our society in comparison to advertising cigarettes. In reality, it is not so much of how much harm it does or how unethical. Rather, it ultimately comes down to the how we, as consumers, realize the impacts and consequences of these harms and adjust our own ideal virtue toward the actions. Such adjustment would drive the final decision of moralization, as in the case of advertising cigarettes. Yet the decisions and realizations often ties with the consumers’ lifestyles, the producers’ power, and how the society is structured. The moralization of behaviors therefore depends on the social awareness, lifestyle, political power and social conditioning. The principle of deontology addresses the conflict of duties and responsibility of corporation, both to shareholders and consumers. While this ethical framework cannot finally answer to the conflict, it provides a ground rule for further solution to the problems. It is concluded that one needs not violate duties to one entity to fulfill the duty of the others. As for the utilitarianism approach, the paper uses the principle as a solid foundation but it is discovered that the framework needs more development. Although it explains the “greatest good for the greatest number of people,” it needs to address more on the definition of “greatest good.” Does it make sense to do “greatest good” in one area to cover up the “greatest evil” in other areas? Should we look at groups or corporations by the sum of their actions or should we judge them on the basis of each separate action? And finally, the principle of virtues has proved that we have the innate ideas of realizing advertising to children is wrong, yet we still do it. Our “moralization switch” does not and will not change until we start changing our lifestyles, our social awareness and the way our society is structured.

Bibliography


The Ethics of Corn
Alessi Scott

Abstract

Corn has become an increasingly popular use as an artificial sweetener in many foods that are eaten on a daily basis. Because it is inexpensive to grow the corn, the foods it is added in are cheap as well. What the public may not know about their diet that includes corn products are the hidden implications of eating so much corn. High fructose corn syrup has been associated with mercury poisoning. The corn subsidies that allow cheap production to take place have been linked to obesity; these subsidies have also been linked to the impoverishment and displacement of foreign corn farmers in Mexico. This paper discusses such claims and applies different ethical theories such as deontology, utilitarianism, the veil of ignorance, and Steven Pinker’s moral ’codes’, to sort out the dilemma of whether or not corn should be used as an additive in food products.

Introduction

Nutri-Grain, Kraft, Yoplait, Smucker’s, Hershey’s, Tropicana, and Quaker. These brand names of food items are commonly recognized across the United States; their products are staples in the American household. Each of these brands also produces foods containing high fructose corn syrup (Wallinga et al. 5). Upon learning many frequently consumed food products contain this substance, one may begin to question what it is that one is putting into his or her body. High fructose corn syrup, commonly called HFCS, is an artificial sweetener. It is composed of fructose and sucrose and is used as a cheaper replacement of the expensive, imported table sugar (Wallinga et al. 12). It is synthetically composed in laboratories and derived from corn, as its name would imply (Wallinga et al. 11). Realizing what exactly this concoction is does not necessarily put the consumer’s mind at ease, however, as there may still be queries regarding its use in processed foods. For instance, corn production in the United States relies entirely on government subsidies, or financial grants, that aid in the production of the corn. These subsidies are given to corn farmers because of a high demand for the crop as it is processed and added to food items for flavoring or its preservative qualities (Wallinga et al. 9). They are also suspected of relating to health problems such as obesity and to the practice of agricultural dumping, where a crop is sold in foreign countries for a cost below the price of production (“United States Dumping on World Agricultural Markets, 1 ”). Considering how corn can be connected to these issues, is it ethical to manufacture products
containing the crop? Should the food industry continue to process foods using corn as an additive?

To determine the answers to these questions, I will be examining a number of different ethical theories. The ethical thinker who will be discussed most, Steven Pinker, believes in five moral codes: freedom from harm, fairness, respect for authority, a sense of loyalty within a community, and purity (Pinker 36). In this paper I will be discussing the ethics of corn as an additive in terms of Pinker’s freedom from harm, fairness, loyalty, and respect for authority codes. Additionally, I will discuss the ethical theories of deontology, utilitarianism, and ‘the veil of ignorance’.

While it is difficult to have a ‘right’ and ‘wrong’ answer as to whether something is ethical or not, my personal thoughts are that the food industry’s act of using corn in our foods is unethical. I think there are many more things our government should be spending money on rather than this crop; putting money into the nation’s education system, for example, or creating more job opportunities for the large number of unemployed individuals in the country, would be more beneficial. I feel it is wrong of them to encourage the mass-production of corn to make unhealthy processed foods rather than encouraging farmers to produce other more wholesome fruits and vegetables. I believe that the food industry continues to produce these unhealthy processed foods because they are able to reap the benefits, in the form of money, even if it means that the general population suffers as a result.

According to the information I have discovered however, the use of corn as an additive in food products can be both ethical and unethical depending on existing circumstances. I will be examining three aspects of the corn industry and its relationship to consumers: the contamination of high-fructose corn syrup with mercury, corn subsidies and specifically their relationship to obesity in the United States, and the practice of agricultural dumping into Mexico. These three case studies, along with the ethical theories and concepts I have listed, will serve to prove or disprove my thesis.

**High Fructose Corn Syrup and Mercury**

A risk associated with the use of high fructose corn syrup in the manufacturing of food that is not highly publicized is the possibility of mercury poisoning. The average individual may not understand what correlation corn syrup has with mercury, but the connection lies with the way in which the syrup is produced. David Wallinga, Janelle
Sorensen, Pooja Mottl, and Brian Yablon, in their article “Not So Sweet: Missing Mercury and High Fructose Corn Syrup” explain by speaking of the production of the artificial sweetener: HFCS is produced using a substance called caustic soda. Caustic soda is produced in chlorine plants that use mercury to facilitate the production (Wallinga et al. 10-11). Thus the chlorine retains remnants of mercury, contaminating the HFCS and subsequently the food item containing the HFCS (Wallinga et al. 10). To enlighten the reader of the dangers of mercury, the authors explain that it is “a heavy metal with the potential to damage many organ systems…toxic in all of its various forms” (Wallinga et al. 12). They then go on to say that exposure to mercury on any level can profoundly affect brain development (Wallinga et al. 12). In a study of mercury content in HFCS-containing processed foods done by the Wallinga group, one out of every three foods tested contained mercury (Wallinga et al. 16).

Controversy lies in the fact that foods the American population eats on a daily basis contain a hazardous substance and that the United States Food and Drug Administration, the FDA, fails to adequately acknowledge this danger. Presently, the FDA labels HFCS as “GRAS”, or “generally recognized as safe”, meaning that “although a food ingredient hasn’t been completely studied or tested for safety, the FDA…considers it to be safe, putting the onus instead on the public” (Wallinga et al. 9). Given this information, there may be a lack of ethical cohesion. One would think that because the FDA is responsible for food safety matters, they would not simply leave such an issue up to the public.

In Pinker’s article “The Moral Instinct”, he describes different types of morals, one of them being that we ought not to harm others (Pinker 36). To elucidate what this moral code means, he gives an example of pinpricking. To stick a pin into your own palm is by all means acceptable, but to stick a pin into the palm of an unknown child is not acceptable and, because it inflicts great harm, is unethical (Pinker 36). The fact that there is a known serious danger of consuming mercury and yet consumers are not stopped from consuming food items containing mercury seems harmful. There is great possibility of inflicting danger onto others by putting mercury-containing products into the food market, and yet it is still done. Just as it is wrong to purposely harm a child, it is wrong for the HFCS industry to continue harming consumers. According to this methodology, because HFCS-containing products can cause harm, corn ought not to be used in food products.
Pinker also states that we ought to respect those with authority (Pinker 36). Compared to the average U.S. citizen, a member of the FDA might be considered to have authority as he or she has the power to decide if food items should be banned or not. However it does not seem right to hold a group of people in high regard if they are not truly looking out for our best interests. Interestingly enough, Walter Glinsmann, an ex-member of the FDA and author of a report written in 1986 clearing sugar of its negative health-related accusations, went on to become an advisor for the Corn Refiners Association, or CRA (Taubes 3). The Corn Refiners Association represents the corn industry. In discussing the failure of Congress to recall tainted meat products, Eric Schlosser in Fast Food Nation mentions how “[t]he federal government has the legal authority to recall a defective toaster oven or stuffed animal – but still lacks the power to recall tons of contaminated, potentially lethal meat” (Schlosser 9). Just as curious as it is for those in power to fail to remove toxic meat from the shelves, it is curious why those in power fail to remove mercury-containing HFCS from the hands of consumers. Glinsmann’s defense of sugar and HFCS and subsequent move to the CRA may explain why the FDA does little to regulate the mercury contamination. Perhaps any practice that sustains the corn industry benefits Glinsmann as well.

To so inadequately perform their duty to protect people from consuming unsafe foods seems ethically undeserving of commanding respect. Furthermore, in failing to sufficiently protect citizens, the FDA does not fulfill their administrative duty. Philosopher Immanuel Kant’s theory of deontology says that people should act with duty in mind. It is the duty of the FDA to protect the U.S. public, but instead of regulating mercury contamination or at least properly warning the public, they leave the decision to eat potentially dangerous processed corn-containing foods to consumers.

Wallinga et al. label mercury-contaminated HFCS “a completely avoidable problem” (Wallinga et al. 4). HFCS incurring mercury as it is produced is no longer necessary; newer technology exists to produce chlorine that does not involve mercury. Many chlorine production plants in the United States have switched over to using this new technology as it is more efficient (Wallinga et al. 4), but there are still some plants that have not yet switched. It is unclear why exactly the remaining chlorine plants have not yet made the switch, but if all chlorine production plants in the United States were to start manufacturing without the use of mercury, HFCS would become safer to consume.
In doing so, not only would the chlorine plants be benefitting themselves as they would have more efficient production, but the end product containing the HFCS would no longer be toxic and consumers would not be harmed. This scenario, according to Kant, ought to be followed through with as it benefits everyone at large. As his theory of utilitarianism states, it would produce the greatest good for the greatest number of people.

**Corn Subsidies and Obesity**

A more commonly heard association between corn and health is obesity. Scott Fields, author of article “Fat of the Land: Do Agricultural Subsidies Foster Poor Health?” suggests that subsidies for corn farmers do perhaps encourage poor health and even obesity, and that the use of corn causes a socio-economic division that forces less fortunate people to bear the brunt of its use.

Farm subsidies were initially begun as a way to “stabilize crop prices, keep farmers going, and provide farmers with an affordable, reliable supply of food” (Fields A821). Although these subsidies are now almost depended upon by farmers, they have created an affordable, reliable production of corn. Since it is now so readily available, the corn is incredibly cheap and thus the foods that use it as an additive are incredibly cheap. However these processed foods are generally high in sugar, fat, and calories, while low in nutritional value, and their cheap costs make them more affordable to poor people (Fields A821). To clarify how these processed foods contribute to obesity, Fields quotes Darius Lakdawalla, an economist, in saying that “it’s a very simple explanation. People face cheaper food. They eat more. And they weigh more” (Fields A822). Michael Pollan, in chapter 16 of his book *The Omnivore’s Dilemma*, seems to agree with Fields and Lakdawalla when he says, “…food companies put their efforts into grabbing market share by introducing new kinds of highly processed foods…sold under the banner of ‘convenience’…” (Pollan 301). Food companies know that people who have less money will be more willing to buy cheaper foods, and as a result of farm subsidies, cheaper foods are effortlessly produced.

While these subsidies provide inexpensive options for poor people, according to Fields, they do more harm than good. The fact that farmers receiving payments from the government and food companies producing artificially-sweetened foods seem to be helping the cases of obesity grow is unethical. According to Pinker, it is “bad to harm others and good to help them” (Pinker 36). By failing to provide cheaper, healthier food...
options to the general public and instead promoting the purchasing of processed foods containing corn additives, government subsidies hurt people rather than help them. Fields quotes professor of medicine and nutritional sciences Richard Atkinson as saying that “There are a lot of subsidies for the two things we should be limiting in our diet, which are sugar and fat, and there are not a lot of subsidies for broccoli and brussels sprouts” (Fields A823), and he is correct. Adeli et al. in “Fructose, Insulin Resistance, and Metabolic Dyslipidemia” explain how unhealthy high fructose diets are: “High fructose diets can have a hypertriglyceridemic and pro-oxidant effect, and fructose fed rats have shown less protection from lipid peroxidation. Replacing the fructose in these diets with a more natural source of high fructose, honey, reduces this susceptibility and lowers plasma nitrite an nitrate levels” (Adeli et al. 7). Instead of helping farmers grow more wholesome crops, the government helps them grow enormous amounts of corn. Much of this corn is then produced into HFCS which, as is demonstrated with the rats discussed in this paper by Adeli et al., can cause many health problems if consumed too often in one’s diet. Until other agricultural sectors that produce crops containing lower levels of fructose, for example, receive the same types of subsidies that corn farmers receive, consumers will remain in danger by consuming corn products and the government will continue acting immorally.

While some people believe that subsidies for corn farmers are a cause of obesity, not everyone is convinced. Alston et al. in the article “Farm subsidies and obesity in the United States: National evidence and international comparisons” write that the subsidies do not actually have any large significance on the United States’ obesity epidemic. In fact, Alston et al. go so far as to say that “any effects of U.S. farm policies on U.S. obesity patterns must have been negligible…even entirely eliminating the current programs could not be expected to have a significance on obesity rates” (Alston et al. 470). The authors instead blame dietary patterns on the ever-rising rate of obesity in the United States, saying that the national food and nutrition programs ought to be revised instead (Alston et al. 1). In a report from the Journal of the American Heart Association, Flickinger and colleagues have similar suggestions. They state that added sugar consumption in general ought to be limited as it “displaces nutrient-dense foods in the diet” (Dowling et al. 1), and also believe that the FDA ought to provide better labeling concerning added sugars on processed foods (Flickinger et al. 2486). In terms of added
sugars, white, brown, and corn sugars are all included (Dowling et al. 1). Given this information, one can deduce that farm subsidies are not in fact harming anyone. Through the foods that are produced as a result of these subsidies, there is no true correlation to obesity. People ought to be responsible for what foods they choose to consume.

Forshee et al. in their paper entitled “Critical Examination of the Evidence Relating High Fructose Corn Syrup and Weight Gain” agree. Focusing on the supposed relationship between HFCS and obesity, the paper examines other papers that have been written on the topic. But Forshee et al. make one clarification that is usually not remembered: “…fructose alone is irrelevant to the HFCS and weight gain debate. HFCS is not fructose” (Forshee et al. 2). Many studies, like the ones discussed in Forshee and colleagues’ paper, observe the relationship between fructose and obesity, since HFCS usually contains around 55% fructose. However, it is important to note that the two are different substances, so HFCS cannot be held responsible for obesity simply if fructose can. According to Forshee et al., the corn derived from corn subsidies to be used in HFCS is not the cause of this major health problem.

Since according to Alston and Forshee and their colleagues there is no harm being done, corn subsidies can still be viewed as ethical. Pinker says that it is one’s duty to do no harm unto others, and since obesity and the use of corn in processed foods are seen as two unrelated issues in these papers, the government’s financial aid to farmers should continue.

**Agricultural Dumping**

Subsidies provided to corn growers in the United States by the United States government affect not only this country, but foreign countries as well. Mexico suffers adverse effects at the hands of their northern neighbors; in some parts of the country, seventy percent of the corn-dependent population lives in extreme poverty (Fanjul and Fraser 6). Members of Oxfam International Gonzalo Fanjul and Arabella Fraser write of the hardships of Mexicans in their report “Dumping Without Borders”: following the creation of the North American Free Trade Agreement, or NAFTA, the Mexican market was opened to United States imports. Because such high subsidies are given to United States corn farmers, the crop is grown in excess and is then imported into Mexico where it is sold cheaper than the corn from Mexican farmers themselves. Chantal Thomas writes in “Globalization and the Border: Trade, Labor, Migration, and Agricultural Production
in Mexico” that upon the creation of NAFTA, “Mexico had about three million corn farmers” while “the 75,000 corn farmers in Iowa produced twice as much corn as Mexico, at half the price” (Thomas 886). Even though Mexico had an astounding number of farmers, a single state in the United States was producing more corn. Mexican farmers have therefore been forced to compete for business and have been struggling to produce enough income. Their options are to either migrate with or without their families to the U.S., seeking better job opportunities; or stay, and find second jobs along with struggling to send their children to school (Fanjul and Fraser 7).

It seems that this practice of agricultural dumping does more to harm the Mexican people than it does to help them. But, quoted as he complained about anti-agricultural dumping, Senator Norman Coleman said, “…we produce more than we can consume in this country and so we need access to foreign markets if our farm families are to earn a decent living” (Fanjul and Fraser 9). These harsh words violate John Rawls’ ‘Veil of Ignorance’ theory, which states that one ought to put a veil over one’s face to be completely unaware, or ignorant, of circumstances. Regardless of whether or not agricultural dumping benefits our farmers, Senator Coleman ought to realize what the effects are to others. In saying that the importation of corn into other countries, at whatever cost, is necessary to benefit those in our country, there is a lack of compassion displayed to the plight suffered by foreigners.

Furthermore, the wealth that is gained by agricultural dumping is not gained by all. According to Fanjul and Fraser, “around one-fifth of the richest corn farms receive nearly one half of government payments to the sector…average annual payment to a very large farm is six times that to a small, low-sales farm…despite the fact that the smaller farms make up 75 percent of all corn farms” (Fanjul and Fraser 13). The corruption illustrated with the distribution of corn subsidies clearly violates Pinker’s moral code of fairness. He gives an example of accepting a television from a friend who had received it free of charge versus accepting a television from a friend who had received it from a thief who had stolen the television (Pinker 36). He notes that the second option, the immoral option, is far more corrupt. This same ethical thinking can be applied to the corn subsidies that result in agricultural dumping: it is unfair that the richest farmers are receiving the most money while smaller, poorer farmers receive less. Farmers who are already rich do not deserve to get more help than farmers whose businesses are small and financially
struggling. One party receives something that another party deserves and should get, violating the code of fairness.

Relating to the concept of franchising as described by Schlosser, the United States government can be said to be a franchisor and small farm owners the franchisees. Schlosser says that one, the government in this situation, provides the supplies, and the other, small farm owners, provide the work (Schlosser 94). The government provides farms with subsidies in order to produce corn and the farmers perform the labor. However, this partnership is again unfair in that small, low-income farms account for most of the farms in this country yet receive less than the few, large farms. This franchisor and franchisee relationship can be illustrated with the idea of Trolleyology. Trolleyology is a way of interpreting Utilitarianism, and, according to a Utilitarian, asserts that in a situation where a train is about to run over five helpless people, one ought to pull a switch that would allow the train to switch its tracks and instead run over just one person. Because five people would be saved and only one person spared, one is morally obligated to do so. In accordance with this theory, it is immoral to give less financial relief to smaller, poorer farmers instead of the big, well-off farmers. Since small corn farmers make up 75% of the business (Fanjul and Fraser 13), they ought to receive more help. To act with ethics in mind, the government, or franchisor, ought to provide more subsidies to these farms rather than large farms.

Contrary to information given by Fanjul and Fraser is Timothy A. Wise’s “The Paradox of Agricultural Subsidies”. Wise presents material showing that agricultural dumping is in fact not as large of an issue as some reports may make it out to be. The Producer Support Estimate, or PSE, is an international ‘measure’ of producer subsidies (Wise 2). This form of measuring government support often inaccurately calculates the amount of subsidies being given as it does not directly measure them, but estimates. In fact, Wise says that “policies that lower prices in exporting countries—even if these are due to increases in domestic or export subsidies show up in other countries’ PSEs as an increase in domestic support for their own producers” (Wise 17). Clearly then, the United States’ practice of agricultural dumping does not pose harm to foreign farmers, but actually helps them. According to Pinker, this is perfectly acceptable. Again, he states that “it’s bad to harm others and good to help them” (Pinker 36). Wise’s information shows that our dumping of excess corn into the Mexican market helps, not harms, them.
In addition to the insight provided by Wise, in reference to Senator Coleman’s statement about needing access to foreign markets so that our farmers may live comfortably (Fanjul and Fraser 9), he can be considered to be within ethical boundaries with this statement. Pinker says that we as humans “value loyalty to a group, sharing and solidarity among its members…” (Pinker 36), which is exactly the point that Senator Coleman attempts to get across. If we are producing more corn and not ridding ourselves of it to receive more profits, our farmers will suffer. As a national community, the well-being of our farmers should be considered before the citizens of any foreign nation. Senator Coleman’s words are simply showing his loyalty to U.S. citizens and corn farmers, and so according to Pinker, Senator Coleman is correct and so the practice of agricultural dumping is perhaps not as unethical as Fanjul and Fraser portray it to be.

Conclusion

Before I had begun my research into this topic, I had formulated a hypothesis on whether or not corn should be used as a food additive. Not knowing nearly any information that I now know I had speculated that corn should not be used and that to do so would be violating many ethical laws. According to the facts and data that I have accumulated and read of throughout this process, I now believe my original hypothesis to be partially correct and partially incorrect.

One of the largest ethical violations in the corn industry is that consumers are not being kept from harm’s way, which Pinker believes ought to be done. By risking mercury ingestion through eating HFCS and eating food products that, because of corn subsidies are linked to obesity, American consumers are being harmed. Even in Mexico as a result of agricultural dumping practices, citizens are being harmed. In these ways, corn is detrimental and therefore should not be added to foods.

That I was able to find many counter-arguments to my initial hypothesis is what has made me believe that it was also partially incorrect. There is information entirely refuting that people who consume corn-containing products will be harmed. According to some of the authors I have discussed, corn subsidies may actually not play a role in obesity. If HFCS manufacturing plants were to switch to newer technologies and avoid mercury contamination, consumers would be protected from further ingesting toxic foods.

All if the theoretical framework provided through this paper can be proved true according to the information that has been researched. Concerning Pinker’s moral themes
of respect for authority and freedom from harm, the information I have collected proves these principles to be true. He says that we ought to respect authority figures but since the FDA, a group of people who have authority over what is deemed safe to eat or not, have not been doing their duty to the public, it seems correct that the public should not be obligated to respect them as much. Deontology, the idea that people ought to act according to their duties, is proved to be true as well by the FDA’s insufficient implementation of their duties. Additionally, the fact that citizens are being hurt instead of being helped as a result of consuming so much corn does not seem right and also verifies Pinker’s belief. I strongly believe that it is immoral to put others in harm’s way, and have presented cases where the corn industry clearly violates this moral rule. According to the idea of Trolleyology, I believe the numerous amounts of small, family-owned corn farmers should be getting help rather than the handful of rich, corporate corn farmers in the United States. It does seem unfair that a large amount of people who need more help than a few number of people are receiving less help and this situation proves Trolleyology to be a correct ethical solution.

In some ways it can be thought of as acceptable to use corn as an additive in food products, for instance if it is not harming others or if it is benefitting more people than it causes detriment to. In some ways however, the use of corn is unacceptable and should not be allowed.

Bibliography


Sexy Food: The Ethics Behind Food Advertising
MacKenzie Sizemore

Abstract
This research paper explores whether or not it is ethical for food advertisers to sexualize food as a means of selling a product, despite the increasing prevalence of eating disorders in America, primarily anorexia nervosa and bulimia nervosa. Sexualized food advertisements enforce the ideas of forbidden foods and food products as lovers, as well as promote an overly-thin body ideal. These messages are dangerous and can contribute to the development of eating disorders. However, cultural expectations and biological predispositions also play a role in eating disorder development. Using the theories of Deontology, the Veil of Ignorance, and Steven Pinker’s Moral Codes of harm, community, and fairness to analyze the ethics of food advertisements, it appears unethical for food advertisers to continue to sexualize food for personal financial gain while eating disorders are on the rise in America.

Introduction
When we think of the words guilt, pleasure, sinful, forbidden, and ecstasy, what images come to mind? What connotation does the phrase “sins of the flesh” conjure? Is it food, or is it sex—or perhaps both? Similar language is used to describe both food and sex, which represent two powerful human drives that dictate many of our behaviors. The parallel appetites for food and sex can drive us to great pleasure, as well as great despair, whether overindulged or unnaturally repressed. Stanford University researcher Mary Eberstadt writes that sex, once the frontrunner of American cultural taboos, has undergone a remarkable loosening of traditional rules and regulations over the past fifty years (32). In this same time period, cultural guidelines about food and eating have tightened, and a sort of moral code regarding food choices has developed. Strict regulation of the sexual appetite has been replaced with strict regulation of the appetite for food, and in this way food has been sexualized. Food has been equated with sex, which is evident in the many sexually-charged food advertisements that permeate our everyday lives.

The strong sexualization of food has been paralleled by a sharp rise in the prevalence of eating disorders in America, primarily anorexia nervosa and bulimia nervosa. Anorexia nervosa is characterized by a “relentless pursuit of thinness” achieved through self-imposed starvation, highly restrictive dieting, or excessive exercise (“Anorexia Nervosa”). Bulimia nervosa is characterized by frequent episodes of bingeing, or consuming large amounts of food, followed by compensatory behavior such
as purging, or forced vomiting, extremely strenuous exercise, and fasting (“Bulimia Nervosa”). According to the National Eating Disorder Association, eating disorder rates have risen each decade since 1930, and bulimia rates among young women tripled between 1988 and 1993 (“Statistics: Eating Disorders and their Precursors”). Currently, eating disorders are being diagnosed more frequently among younger age groups, diverse ethnic groups, and males, and nearly half of the American population personally know someone suffering from an eating disorder (“Facts About Eating Disorders”). While biology and culture play some role in eating disorder development, food advertisements frequently promote dangerous risk factors including the notion of forbidden foods, food as a lover, and a super-thin body ideal. If the sexualization and subsequent stigmatization of food that is presented in food advertisements is contributing to the rise of deadly eating disorders and increased cultural anxiety about food, is it ethical for food advertisers to sexualize food for monetary gain? Several theories can be utilized to analyze the ethics of food advertisements, including Deontology, the Veil of Ignorance, and Steven Pinker’s Moral Codes of “harm, fairness, [and] community” as discussed in “The Moral Instinct” (36). It appears unethical that food advertisers, who should be selling food based on taste and nutrition, are sexualizing food for personal advancement. The negative cultural effects and increased prevalence of eating disorders due to the sexualized food imagery present in advertisements do not seem worth the monetary gain.

Forbidden Foods

Sexualizing food can lead to negative attitudes and increased anxiety about food and eating, according to Eberstadt’s article “Is Food the New Sex?”. Technological innovations have made sexual activity and food much safer, thus reducing the stigmas associated with both indulgences. These advances, coupled with a loosening of traditional religious restraints imposed on sex, have made premarital sex more socially acceptable. Eberstadt writes that food has become sexualized because “Unable or unwilling (or both) to impose rules on sex at a time when it is easier to pursue it than ever before, yet equally unwilling to dispense altogether with a universal moral code… modern man…has taken longstanding morality about sex, and substituted it onto food” (40). She claims that in an increasingly sexual society, people are unwilling to entirely dispense with their moral codes, so they simply transfer them onto some other aspect of their lives. In Good Girls Don’t Eat Dessert, Rosalyn M. Meadow and Lillie Weiss
discuss one of psychologist Sigmund Freud’s theories that “people [can]…substitute oral pleasure for genital pleasure” (102). Through this substitution of morals and pleasure from sex to food, many dangerous eating habits and attitudes have been normalized, including the notion of forbidden foods.

Forbidden foods take their root in the biblical tale of Genesis. After creating earth, God creates Adam and Eve and commands them not to eat the fruit of the forbidden tree of knowledge. However, the beauty and abundance of the tree is too tempting, and they give in to desire, causing God to place a curse over all humanity. While the ramifications of indulging in such foods may have changed, food advertisements today promote a very similar obsession with a number of forbidden foods that are considered off-limits. This obsession is created through the words and imagery used to advertise foods: the erotic qualities of food are highlighted in advertisements to arouse consumers (Meadow and Weiss 20). Just as movies and books once promoted a stigma of overly romanticized, unattainable sex, food advertisements today promote a stigma of so-called “bad foods”: foods high in calories, fat, sugar, or salt, and “good foods”: foods labeled diet, fat-free, or low-cal. Such labeling of foods is dangerous because “when food is sex, eating becomes a moral issue…the ‘good girl’ today is the thin girl, the one who keeps her appetite for food (and power, sex, and equality) under control” (Kilbourne 115). By sexualizing food, deciding what to eat becomes a dangerous moral battlefield rather than a simple matter of personal taste.

Pinker writes that a universal moral concept people believe is that “it’s bad to harm others and good to help them” (36). So is it ethical for food advertisers to promote sexualized, forbidden foods in order to make money if people are being harmed? When people are presented with the choice of a good food or a bad food, they are naturally inclined to restrict themselves to only the morally acceptable, “good” foods. Just as Adam and Eve are punished for eating the forbidden fruit of the tree of knowledge, consumers are afraid of the punishment they will receive for eating bad, high-calorie and high-fat foods. Indulging in such foods risks weight gain and the possible loss of social acceptance—fat is seen as unsightly and “an indication of moral weakness” (Meadow and Weiss 168). So rather than indulge and gain weight, people restrict themselves to only good, healthy, moral foods. Such restrictive dieting and intense fear of fat and calories is a hallmark of anorexia, a disease with a mortality rate twelve times greater than any other
cause of death for females aged 15 to 24 ("Eating Disorders Statistics"). Furthermore, excluding a food from the diet only serves to make it more tempting and enticing, so showing a food as forbidden increases anxiety about food. If extreme worry, harmful self-imposed starvation, and possible death are the result of sexualizing food, surely it is not ethical for food advertisers to do so—they clearly put consumers in a dangerous and harmful situation. To continue to sexualize foods despite the potentially negative effects on society does not respect the ethical value of freedom from harm.

The Pursuit of Thinness

Food advertisements often feature images of extremely thin, skimpily clad women as models or spokespersons for their product. However, it seems contradictory to use a nearly-emaciated figure to promote a food product. Is it ethical for food advertisers to sexualize and glamorize extreme thinness to make money, and can ultra-thin models be considered trustworthy product advocates? According to Immanuel Kant’s ethical theory of Deontology, people have a moral duty not to use others as a means of personal gain or advancement. Many food advertisers act based upon the ability to make a profit—rather than truthfully represent their product, they rely on sexually charged advertisements promoting the thin ideal to draw in customers, which conflicts with their moral duty not to use others as a means to an end.

One such sexually-charged advertisement, for a diet cheese product, features an image of an extremely thin, nearly naked model wearing the advertisement’s caption around her waist like a belt: “Everybody could use a little less fat” (Wilson and Blackhurst). The advertisement sends a clear message, which is that women can never be too thin. This type of advertisement tells women “that they are not okay the way they are, that they need to trim their waists down and get rid of their flab before they will be found acceptable”, according to Meadow and Weiss (26). If even the thinnest of supermodels is made to feel inadequate and that she should scrutinize her body, the everyday woman must be doubly concerned with her own appearance. While advertisements are meant to tempt consumers to purchase a food, they also serve to reinforce negative body perceptions and feelings of inadequacy and shame that arise from indulging in certain foods. Food advertisements “are constructed in a way that suggests that women will lose this [perpetual beauty] contest unless they buy the right food product”, according to Wilson and Blackhurst. Food advertisers explicitly seek to create
body dissatisfaction as a means to sell a product—they prey upon the body insecurities of others as a method of making money, which is not ethical according to Deontology.

The idolization of extreme thinness promoted in food advertisements is a dangerous behavior that can lead to and is characteristic of eating disorders, primarily anorexia. Author and eating disorder survivor Marya Hornbacher writes in her memoir *Wasted* that “we speak as if there was one collective perfect body…underneath all this normal flesh, buried deep in the excessive recesses of our healthy bodies, there [is] a Perfect Body just waiting to break out. It would look exactly like everyone else’s perfect body” (47).

Rather than appreciating the body as a part of the self, the body is viewed with disdain as a separate, loathsome entity that must be molded into some arbitrary, undefined “perfect body”. Food advertisers exploit insecurities about lacking the perfect body as a means to make money, which promotes extremely dangerous eating behaviors and undermines stability regarding food and eating. Using other people as a means of financial gain while supporting and inducing harmful disordered eating strongly violates the ethical duty described by Deontology.

*Food Products as Lovers*

The harmful food labels and super-thin body ideal promoted by food advertisements through food sexualization are accompanied by another dangerous phenomenon: sexualized food is conferred with near-magic qualities and comes to be seen as a lover instead of a product. Advertisements for sexualized foods promise feelings of comfort, happiness, and gratification which can also be experienced through sex, and in this way food becomes a lover. As Meadow and Weiss write, “food is love and sex and closeness and comfort…and food is a very seductive lover. Unlike other lovers, it is always there when you want it … all it takes is a few steps to the refrigerator…to get your daily love fix” (124). However, eroticized foods “are endowed not only with the power to arouse, but with a moral power as well…Eroticized food is seen as sinful”, as it is often high in calories, fat, or sugar (Meadow and Weiss 20). This sinful quality serves to make sexualized foods more exhilarating to eat, much the way a sexual encounter seems more exciting because of its naughty, forbidden nature.

The Veil of Ignorance, an ethical theory originally described by John Rawls, states that if one were to wear a veil concealing one’s place in society when making decisions, one would choose what is most beneficial to everyone because one would be unaware of
one’s own position and hope to ensure personal stability (Freeman). From this viewpoint, it seems unethical that food advertisers continue to sexualize food because they are considering their own financial gain without considering what effects their advertisements have on consumers. Marketing food as a lover only serves to worsen conflicts with food. The erotic qualities and promises of happiness and contentment displayed in food advertisements promote indulging in what are often high-calorie foods. These indulgences can lead to weight gain, which creates despair and unhappiness because thinness is so glamorized and adored. Food advertisers then take advantage of this dilemma through their advertisements in order to sell their products and “fuel the mistaken belief…that restrictive dieting can be successful if only the right products are obtained—products that will magically transform [people’s] diets and even their lives” (Wilson and Blackhurst). By marketing food as an ever-present lover or as a magic cure for eating dilemmas, food advertisers further conflict over food in an effort to ensure their own fiscal stability, which goes against the ethics of the Veil of Ignorance. Food advertisers use this strategy because “compulsive eaters, obviously, are going to spend a great deal more on the [product] than are the people who eat it infrequently…no matter what a company is selling, the heavy user is their best customer” (Kilbourne 121). By normalizing dangerous attitudes about food, advertisers are ensuring their own success by luring in customers. Food advertisers look at their personal gain without observing the situation as a consumer and recognizing the dangerous conflicting messages associated with promoting food as a lover, which is unethical according to Rawls’ theory.

The Role of Western Culture

Despite the immoral appearance of many food advertisements, other highly significant factors are at play regarding the development of an eating disorder, especially culture. Anorexia and bulimia are primarily found in wealthy, developed Western countries that emphasize the importance of appearances and thinness, and within those countries women tend to be the most affected, making up about eighty-five to ninety-five percent of those who suffer from eating disorders (“Statistics: Eating Disorders and their Precursors”). In many non-Western cultures, a larger, more curvy and voluptuous figure is celebrated as it represents health, fertility, and social status—only those with enough economic power can access enough food to achieve such a rounded, nourished body (Frederick, Forbes, and Berezovskaya 204). This knowledge makes it difficult to pin
blame on food advertisers, and rather “The prevalence of eating and body image problems is evidence that rather than representing pathology on the part of individual … such behavior reflects pathology in our culture” (Wilson and Blackhurst). Surely in a country where 24 million people suffer from eating disorders, some common cultural factor is at work (“Eating Disorders Statistics”).

The introduction of Western culture via television to the non-Western Fijian islands in 1995 is a shocking illustration of the effects that Western culture can induce, according to an article from Harvard University researcher Anne E. Becker (534). Traditionally, Fijian culture valued a robust body size and lacked social pressures to be thin—in fact, “going thin” and dieting were regarded as dangerous and unnecessary behaviors, and eating disorders were essentially unheard of (Becker 538). However, within three years of television’s introduction and exposure to Western cultural ideals, the number of teenagers at risk for eating disorders doubled and nearly three quarters of teenagers felt that they were “too fat” and needed to diet (Kilbourne 135). Similarly, in a study comparing body dissatisfaction and ideals among Western and non-Western nations, both women and men from the United States were more likely to express body dissatisfaction and describe a smaller ideal body size than respondents from Ghana, who are significantly less exposed to Western cultural values (Frederick, Forbes, and Berezovskaya 212). While these cases do not conclusively prove that Western culture causes eating disorders, they do indicate that Western emphasis on thinness, dieting, and appearances play a significant role in promoting body dissatisfaction and risky eating behaviors.

According to Pinker, a universally respected ethic is “loyalty to a group…and conformity to its norms” (36). Perhaps by presenting images of extremely thin models and promoting a diet mentality, food advertisers are actually being ethical and upholding community rather than destroying it—they are supporting common Western cultural values, even though the ethicality of the values themselves is questionable. Meadow and Weiss write that “it is important to point out that fat is not universally seen as ugly, and antifat attitudes are limited primarily to affluent Western nations” (168). Most of the few non-Western cases of eating disorders lack the obsessive weight concerns associated with the Western classification of the diseases, according to a study by Harvard researchers Pamela K. Keel and Kelly L. Klump. If food advertisers were to promote the healthy
eating habits and more full-figured, natural looking body ideal of non-Western cultures, they would be unethically acting against the community value by deviating from the norm. Perhaps it is not the food advertisements that should be questioned, but the culture itself. By promoting the antifat attitudes and diet mentality characteristic of Western culture, food advertisers may be acting ethically in maintaining common Western cultural ideals.

The Role of Biology and Personality

Food advertisements promote dangerous eating behaviors, but several biological factors and personal characteristics may also be at the root of eating disorders. Hornbacher notes that “many people who get eating disorders have a preexisting chemical depression or other biological predispositions that lead to eating-disordered behavior…the chemical imbalance that malnutrition induces may lead to depression, which in turn is dealt with through eating-disordered behavior” (195). Current research suggests that “specific genetic loci” may contribute to eating disorder susceptibility and that eating disorder heritability is nearly fifty percent (Keel and Klump). While food advertisements do encourage negative eating habits, these findings implicate biology as a main factor in the development of eating disorders.

Furthermore, many eating-disordered patients have similar personality traits. Psychologist Michael W. Wiederman writes that most anorexics exhibit “a high degree of compulsivity, rigidity, perfectionism, and general constraint” (306). These qualities often exist prior to the development of the eating disorder and are exacerbated by the disorder, thereby perpetuating the cycle: the individual craves control and perfection, which manifests in the form of an eating disorder. The eating disorder induces chemical changes in the brain that cause an addiction much like any drug addiction, and dangerous eating behaviors get worse as the individual feels the need for more control. Hornbacher writes that “at a certain point, an eating disorder ceases to be ‘about’…your family or your culture…it becomes an addiction not only emotionally but also chemically…You are also doing it for yourself” (64). Eating disorders appear to be strongly related to an individual’s biological makeup and personality, which takes some of the blame away from food advertisers.

Pinker writes that another moral universal is “a sense of fairness: that one should…reward benefactors and punish cheaters” (36). If eating disorders have deep-set
roots in biology and personality, it seems unfair, and therefore unethical, to pin the blame for eating disorders on food advertisers when it is truly an issue beyond their control. Food advertisers cannot be held responsible for the biological predispositions and personality traits of the audience their advertisements reach, so it is not fair or ethical to make them fully accountable for the sharp rise in eating disorders that has paralleled the sexualization of food presented in advertisements. However, biological and personal attributes do not fully excuse food advertisers from their role in promoting dangerous eating behaviors and disorders: preexisting biological conditions and personality traits may be exacerbated by hyper-sexualized images of food presented in advertisements. The individual may load the gun, but food advertisers are capable of pulling the trigger.

Conclusion

The sexualization of food that has occurred across America over the past fifty years has been accompanied by a frightening rise in eating disorder rates, especially among younger age groups. Sexualized food images are frequently found in advertisements for food products as means to entice consumers. However, these images promote dangerous ideas and behaviors considered risk factors in eating disorder development. By sexualizing and presenting foods as both forbidden objects and lovers and by idolizing a dangerously thin body ideal, food advertisers are sending conflicting, harmful messages to consumers: that they should limit themselves only to good, low-calorie and low-fat foods, but that bad, high-calorie and high-fat foods are delicious and not to be ignored, and that somehow a toned, taught, supermodel-thin body ought to be maintained through this conflict. These harmful contradictory messages and increased prevalence of eating disorders bring into question whether it is ethical for food advertisers to sexualize food for personal monetary gain.

Using the theories of Deontology, the Veil of Ignorance, and Steven Pinker’s Moral Codes of harm, community, and fairness, the ethicality of sexualizing food in advertisements was analyzed. According to Deontology, it is unethical to put others in harm’s way for personal advancement, yet food advertisers promote and normalize dangerous eating behaviors as a means of financial gain. The Veil of Ignorance states that if every person were to wear a veil making them ignorant of their place in society, people would make decisions that are best for everyone because they do not know their own position, and that this is the most ethical method of evaluating a decision’s effect.
However, food advertisers only look at their own personal monetary growth rather than looking at the negative effects on consumers of sexualizing food. Food advertisers also violate Pinker’s ethical value of freedom from harm by presenting sexualized images of food and promoting ideas that are risk factors for developing eating disorders. Utilizing these theories in research, the hypothesis that it is unethical for food advertisers to sexualize food is supported. By placing consumers in harmful situations without acknowledging their viewpoint, all for the purpose of personal financial gain, food advertisers are acting unethically. The ethical theories support the research, but the research also helps to support the ethical theories. By sexualizing food, advertisers are knowingly violating consumer rights to make healthy, educated decisions about what to eat—an innate right that ethical theories provide protection for.

Despite violating many ethical theories, food advertisers may be supporting Pinker’s values of community and group loyalty by presenting ultra-thin models and sexualized foods. Western culture currently tends to emphasize appearances and thinness and may be a greater culprit than food advertisers in the rise of eating disorders. Biological predispositions and personality may also play a role in the development of eating disorders, so to blame food advertisers entirely violates the ethical sense of fairness described by Pinker. Biology and personality is out of the control of food advertisers, so it is unfair and unethical to blame them. Although food advertisers cannot be held fully responsible for the rise in eating disorders, they exacerbate cultural and biological influences. Furthermore, the community values supported by advertisers are themselves harmful—promoting such conflicting messages about food and a super-thin body ideal may be undermining cultural values that are actually serving to undermine culture. And while it is not fair to blame food advertisers for biological predispositions, neither is it fair to excuse them entirely of the dangerous role that they do play. This research does not totally undermine Pinker’s ethical values of community and fairness, but suggests these values are a bit more flexible than the others because they can be manipulated to support both sides of an ethical argument.

Deontology, the Veil of Ignorance, and Pinker’s moral codes of harm, community, and fairness, are useful analytical tools in determining whether the sexualization of food by advertisers is ethical given the rise in eating disorders in America. The theories support the research and show that food advertisers are acting unethically by sexualizing
food. Eroticized food is endowed with a dangerous immoral quality and tends to undermine cultural stability regarding food. However, the research shows that some ethical theories are easily stretched and manipulated depending upon the situation and may not be the best indication of ethicality. The negative, dangerous effects of sexualizing food on a large audience of consumers seem to outweigh the monetary gains received by a few advertisers, so sexualizing food appears to be unethical. Food is meant to sustain life, yet sexualizing food does just the opposite—it takes away stability about food and encourages deadly eating disorders, and is therefore an unethical practice.

Bibliography


CONTEMPORARY SOCIAL ISSUES
Young Homosexual Adults:
What Keeps Some “Closeted” While Others are “Out?”
Sonia Kuismenan

Abstract
This paper focuses on the present reasons for some people choosing to come out as a homosexual, while others choose to remain “in the closet” and live a heteronormative lifestyle. Traditionally societal pressures, which discouraged non-conformity, inhibited people from “coming out”, but with the advancement of genetic science the societal views seem to be changing and the people who may have once feared expression of their sexual orientation can now openly express themselves. Individuals that are choosing to come out often have family, friends, and lovers that they are connected with through attachment, love, lust, or any combination of the three. If people did not come out as lesbians, bisexuals, gays, or any other form of non-heterosexual they would not be faced with the additional conflicts and issues that the non-conforming population has to face. So what are the underlying causes for them to do so? Is it exposure to the LGBT community, purely nature, or a combination of the two? My focus is young adults of both genders that identify as lesbian or gay in our Western society. One of the main issues that out individuals face is social conflict. They never know who will be accepting and who will shun them.

Introduction
Children are conceived by a man and a woman; it is therefore safe to say that most of us were brought up thinking that little boys ought to like little girls, and little girls ought to like little boys. Many of us are brought up with heterosexuality entwined in our daily life and we therefore have a heterosexual outlook on life from an early age, which may account for some people’s ignorance towards alternative sexual orientations. People are unaware of other ways of life because they have not been subject to them as they grow up. But if this is true, then why are there homosexuals among us and what drives them to “come out” and reveal themselves to the world around them? For years an ongoing debate has ensued between scientists as to whether nature or nurture is the primary cause of this alternative sexual orientation. It is now thought that perhaps a combination of the two is what causes people to choose to live outside the heterosexual norms. This brings us to my research question: What drives some modern youth to choose to “come out” while others deny their homosexual feelings and choose to lead a heteronormative life: Is it the force of nature, nurture, or a combination of the two? In other words why do some youth come out as homosexuals and openly admit their sexuality to the world while others choose to stay “closeted” and follow the heteronormative norms despite this going against their own feelings of attraction?
Theoretical Framework

Many of the choices we make are linked to our bodies; feelings, cravings, and wants all of which loosely translate to hormones. When people choose to “come out” as homosexual they must take into account their relationships with their close family and friends as well as lovers. These relationships are based on feelings of love, lust, and attachment which are produced by different amounts of hormones that are made and secreted throughout our bodies. The neurochemical levels that control our basic human feelings of love, lust, and attachment are continuously molded by outside factors within our environment, which can be altered during the “coming out” process. These changes in our neurochemical levels link to Dr. Helen Fisher’s article. Helen Fisher, a professor at Rutgers University, states in her article “Web of Love: Lust, Romance, and Attachment” that neurochemicals are responsible for people’s feelings of love, lust, and attachment towards others. She says we can develop these different feelings over time in any order. If we were to check the hormone levels of a person lusting over someone we would find higher testosterone levels compared to the individual in an attachment based relationship that is less sexual and has higher dopamine and oxytocin levels.

Knowing the relationship neurochemicals have with feelings of lust, love, and attachment helps me view the relationships between the homosexual individuals and their loved ones in a more objective way as well as to understand what goes on in the different relationships that homosexuals have formed and may break during the coming out process. In addition it will help me understand the different types of family’s homosexual individuals describe themselves in, families of origin, families of choice, and partnerships and how the neurochemicals change when for example the biological family rejects them, which leaves them to find a new family consisting of close friends and lovers.

In addition to Helen Fisher, Professor Gill Valentine, University of Leeds, United Kingdom, et al. also serves as a theoretical framework as she explores in her article “Coming Out and Outcomes: Negotiating Lesbian and Gay Identities with, and in, the Family”, changes in family life during and after the process of coming out. She also talks about the negative consequences as well as the reasons why some individuals choose to stay “closeted”. Professor Valentine’s insight represents an objective view on what the possible positive and negative outcomes can be in a young homosexual’s life whether they do or do not choose a lifestyle that is not socially viewed as normal.
**Terms and Definitions**

*Important Terms and Definitions*

Lesbians and gay men are referred to as part of the LGBT community in all of the articles I am using and it stands for lesbians, gay men, bisexuals, and transsexuals. “Coming out” is when a homosexual individual chooses to admit to themselves and let friends and family know their alternative sexual orientation. A “closeted” individual is someone who is aware of their own sexual orientation, but has not let others know of it. They may also be in denial to themselves for religious reasons or some other thing that does not accept homosexuality. Dopamine is important to know as it is the neurochemical that is linked to romantic love as are norepinephrine and serotonin all of which are found in the human brain and influence the feeling of romantic love. These neurochemicals can help explain what happens between individuals who fall in love with another whether it be the opposite or the same gender. Oxytocin and vasopressin are produced primarily for female-male attachment. This attachment can be expanded to female-male, male-male, and female-female attachment and can be applied to, not only a sexual relationship, but also to friendship and family ties. The concepts of family is brought up in many of texts that I am employing, especially in Professor Gill Valentine’s article about the outcomes of coming out to one’s family. Family can be defined in many ways. I am using it as an umbrella term which encompasses, families of origin, families of choice, cohabiting partners (with or without children) who are not legally married, single parents, same-sex partnerships as well as part-time relationships; relationships that are maintained between different homes, sometimes over large geographical distances. All these forms of families are common in our post-modern world. Socio-familial relationships are discussed in many of the texts and it refers to the social aspect of family ties rather than the biological factor. The social aspect can change over time and as family ties change during and after the coming out of a homosexual individual. Self-efficacy is a term used in psychology. It can roughly be translated to a person’s belief in their own competence and is discussed alongside mental schema, which is some form of mental structure of the world around you.

**Thesis**

Nature and nurture combined together enable young homosexual individuals to “come out” or stay “closeted”. Environment and societal influences as well as the
acceptance and visibility of the LGBT community play a role in the nurture aspect of “coming out” as a young homosexual. In addition, our neurochemicals play a role in nature as they are what give an individual the feelings of love, lust, and attachment to the same-sex as well as the feelings between family and friends and the homosexual individual. Environmental factors, however, can also be the cause of “closeting” as there is still a fear of rejection by family and friends, and the loss of financial support especially for dependent individuals. With this awareness we can move forward in the acceptance and understanding of young homosexuals and enable them to “come out” and be proud of whom they are.

**Body of Research Paper**

**Sexual Orientation and Genetics**

Many researchers focus on the genetic and biological reasons of how homosexuals form within our heteronormative world, choosing to live in a different way than the majority of the world’s population. Researchers want to find the gene or the brain function that causes same-sex desire, perhaps to be able to rid it from our society completely or just to understand the world around us a little better. Coming out, however, has not been discussed within the scientific community linking it to nature and nurture and how they together influence the individual. An ongoing nature vs. nurture debate exists concerning homosexuality. Many people believe it is a matter of choice while others believe it to be linked to genetics and that the trait cannot be altered by therapy, which has ultimately been found to be harmful to the individual in question by the American Psychological Association (APA). Previously, sexual orientation was thought of as unnatural and was not widely accepted. As the medical field, however, has grown concerning sexual orientation we find that more people are becoming more accepting. Unfortunately, we know very little about the human brain, its different workings and the effect they have on sexual orientation. The question is if homosexuality is not a matter of choice then do we still need to be exposed to the possibility of a homosexual lifestyle in order to choose it despite its presence in our genetic make-up? Or is it just controlled by genetics and the ones with the genetic wiring will no matter what express homosexual tendencies? There have been discussions of a “feminized” brain in gay men. The presumed homosexual men were believed to have a similar sized anterior hypothalamus
(INAH 3) as women, but this belief was refuted by Dr. Dick Swaab, director of the Netherlands Institute for Brain Research at Amsterdam University:

[He] investigated a section of the hypothalamus that helps regulate the daily rhythms of the body, he found that this area was larger and contained more cells in the brains of homosexual males than in either females or other males who were presumably heterosexual. Unlike LeVay’s work, Swaab’s studies suggest that while the brains of homosexual men may indeed differ structurally from those of heterosexual men, homosexuals’ brains are not uniformly “feminized”. (Small 74)

A gay man is not just a female brain in a man’s body. Thus, we can conceive that sexual orientation is much deeper than one specific gene in the human genome. In fact, despite the debate on nature vs. nurture, many believe that the cause of homosexuality is a mixture of these two natural forces working together to bring forth an alternate way of life. This view is taken up by Phillip L. Hammack, a professor at UC Santa Cruz who states “biology creates the emotional foundation within individuals to experience sexual pleasure and intimacy in response to members of the same sex. Society offers the social identity category – the categorical marker of self we call ‘sexual orientation’” (282). This means that biology and society work in unison to form a person’s individual identity, whether it is a heterosexual, gay, lesbian, bisexual, or any other form of sexual orientation. By biology he means, our genes and hormones that make us who we are. Society in this quote represents nurture, which helps bring forth the feelings one may have due to their nature and which can then be expressed through the presence of nurture.

Unfortunately neither nature nor nurture can be proven to be working as a single force towards homosexuality so for now we must take them both as a possibility. Helen Fisher may say that since love, lust, and attachment are all linked to the brain, homosexuality is a greater part of nature rather than nurture as the neurochemicals, because neurochemicals such as dopamine and serotonin are enabling people to fall in love and possibly influencing some to fall in love with the same sex. Dr. Fisher, however, also suggests within the context of her article that the neurochemical levels can be influenced by the environment thus linking to the individuals closeting or coming out to one’s family and friends. During the coming out process the stressful or not so stressful environment that the individual and their family are in can be the cause of changes in the neurochemical levels in our bodies that control our feelings of love, lust, and attachment.
Fisher demonstrates that a person’s environment and their actions can change their feelings for another person by telling us of her friend who had been having sex with “just a friend” on several occasions. She says, “[O]ne summer evening, about five minutes after coupling with him, she fell profoundly in love with him” (85). We see here that although this friend was just a friend at first over time the woman’s feelings changed to accommodate her environment. Similar reactions can happen when an individual represses their feelings towards another person they ultimately change their own neurochemical levels of testosterone and dopamine and do not necessarily feel anything for the other anymore over a long period of time. This is also demonstrated when a person comes out to their loved ones. When people are put into a stressful situation their bodies react and if they are repulsed by someone being homosexual it is very likely that their neurochemical levels react and decrease as the people fall out of love or experience loss of attachment to the now “out” individual.

Nature and nurture therefore work together as the enablers of young homosexuals to both realize their own sexuality and to come out to their loved ones. Together nature and nurture point to an alternate solution, one where the two forces are combined to enable a homosexual individual to be in a world of heterosexual majority. I have found that, although neurochemicals and other genetic factors do in fact have some form of control on who an individual finds attractive, there is also an environmental aspect which enables homosexuals to embrace their sexuality and may even introduce them to a community that has people of the same mind set, further aiding them in the coming out process. When an individual makes the choice of coming out they have to reveal their non-heterosexual feelings to their loved ones who may or may not accept them and when they have some form of support on the outside it can help them to accept their own feelings and show them to others. Dr. Fisher, Dr. Swaab, and Dr. Byrne all have different ideas on how homosexuality comes to be a part of an individual’s life and whether it is influenced purely by nature or nurture, but when their thoughts are combined a strong argument towards a combination of the two forces is formed. Together they can account for why an individual may have feelings for the same-sex as well as how they are able to come out and admit that they do within their community.
Choice of Expression

What makes individuals “come out” in the first place when they know that if they do so their lives may be much more challenging than if they were to conform to a more accepted heterosexual lifestyle? Also, what makes others decide not to express their sexual orientation? Is it a matter of family and social stigma or do they just not want to make their lives more challenging by going against the grain? It is probable that there may be a link between the homosexual individuals social network, and its support, and the choice of “coming out” as a lesbian or gay person or staying “in the closet”. How many people choose to ignore their feelings for the same sex, because it is easier to hide their preferences than to disregard the norms and go against the grain? Because of the social stigma that we are all brought up with about the norms of heterosexual lifestyles many may fear to stray from this. This leads Dr. June Reinich, director emerita and senior research fellow at The Kinsey Institute for Research in Sex, Gender & Reproduction in Indiana University, as well as other researchers, to believe that “many women with homosexual tendencies choose not to act on them in response to stronger societal pressure to fulfill the traditional roles of wife and mother” (Small 73). Young individuals may also have the fear of losing precious family ties as well as financial security as they “come out” to their loved ones who may or may not accept them for their sexual orientation. Young individuals must take this into consideration as they may end up on the streets if their family chooses to kick them out. An increasing amount of “out” individuals have emerged over the years, however, which can mean one of two things: Either an increase of people “coming out” rather than staying “closeted” or more homosexuals thanks to natural selection. People may be choosing to “come out” because there has been more understanding and acceptance during the past years, especially with the gay pride parades and other events that are now public to the majority of people. This is reflected in a study conducted on Attitudes towards Lesbians and Gay men (ATLG), which included heterosexual participants with different religious backgrounds, ethnicities, and living circumstances etc. It was found that “individuals who did not have a gay friend of either sex showed statistically more prejudice than individuals who had gay friends of both sexes (Stoever & Morera 203). This shows that ignorance and misconception may be the reason why many still do not accept homosexuality as a natural phenomenon, while others do so with open arms. But unfortunately Professor
Valentine at the University of Sheffield in England reminds us that “despite these positive changes, homophobia and discrimination on the grounds of sexual orientation persist. The decision to ‘come out’ is still therefore both difficult and risky for many young people” (480). And this is most likely the major reason for why people still choose to deny their sexual feelings towards their own gender altogether or wait until late adulthood to recognize the feeling because they no longer have the same peer pressure that they could not escape during adolescence in high school and college. Repressing one’s feelings though may lead to neurochemical level changes, which Dr. Fisher discusses. It may influence the person’s feelings and behavior causing them emotional pain as they struggle through life repressing their own feelings to conform to the norms. But what makes individuals “come out” in the first place when they know that if they do so their lives may be much more challenging than if they were to conform to a more accepted heterosexual lifestyle.

**Change in Our Society**

Unfortunately not all societies offer homosexuality as a social identity and they do not accept people who try to do so. It may be because of the lack of knowledge about this matter, as it was with left handedness in the middle ages when people were thought to be evil because of their favoring of the left hand, or it may just be disapproval of something that is not natural for them so it should not be natural for anyone else either. Despite the many reasons people choose not to “come out”, whether it be a strong sense of obligation to their parents and the fear of hurting them or family status, themselves from discrimination or just the fear of being different from the heteronoms, there are still people “coming out” (Valentine 484). This notion of fear is supported by Professor Steven Seidman:

Researchers have documented that many youth who came of age in the late 1980s and 1990s felt compelled to conceal their homosexuality as a condition of integrating into family, peer, and school communities. Indeed, given their social, economic, and legal dependence on the family and school, their need to manage their identity is potentially fateful in a way recalling closeted homosexuals. Yet, while an easy accommodation to being gay is often blocked by dependence on the family and schools which are among the least tolerant institutions, self-acceptance often occurs anyway. (223)
But although he accommodates Valentines thought on fear of loss of family and financial security, he still believes that even with the difficulties of being gay individuals still manage to gain self-acceptance in most accounts. Of course some cannot, and I will touch upon them later in this paper. Over the years though, an increasing number of “out” individuals, most of them young adults, emerged. The reason for this is our society is releasing the constraints and social norms of tradition leaving individuals freer to choose between an array of sexual orientations and lifestyles in pursuit of their own happiness (479-480). This leaves youth to explore their options and learn more of their sexuality. Our post-modern culture revolves around independency and individuality, which has led to what Dr. Valentine et al. see as a “do-it-yourself” lifestyle. They claim: “The freedom that young people are assumed to have to create ‘do-it-yourself biographies’ has notably been understood to provide more opportunities for lesbians and gay men to live the lifestyle of their choice” (Valentine 480). This means youth no longer clings to the traditions past generations followed, but rather have their own views on how their lives should be led. This change is apparent in other aspects of human life, not just sexual orientation. We can see it for example in marriage, sex, and childbearing and -raising. People no longer stick to marriage before sex and children after marriage. The traditional values have lost some of their power over the course of the past ten years or more with the visibility of homosexuality in the media as well as in peoples everyday lives through homosexual groups, which make themselves known to the public. The combination of all these sources has made it a possibility for alternative sexual orientations to rise to norms in a sense that they never have been before. The youth now are being brought up in a more open society. This is perhaps because their parents generations growing up between the 1970’s and 1990’s may have felt the need for a new freedom that they did not have the luxury of having when they were growing up and worked for to create a better environment for their children. They formed a world where everything sexual is no longer hidden away behind locked doors and we can see as Dr. Hammack notes:

“Adolescence is often a defining moment in identity formation, as subjectivity, culture, and childhood experiences collide with biological ‘predispositions’ to begin this process of self-understanding. As one engages with the sexual stories and sexual ‘scripts’ available in culture, the construction of one’s own sexual life story begins.” (281)
Here he speaks of “sexual ‘scripts’”, by which he means the different lifestyles available within our society; heterosexual and homosexual, as well as any other form of lifestyle. He informs us that now that these lifestyle options are available, the youth of today has the opportunity and the knowledge to embrace the one they feel most comfortable with whether it be homosexual or heteronormative.

What we see when we take Dr. Hammack’s observations of more varied sexual scripts and Dr. Valentines “do-it-yourself” attitude we get many individuals who now know what they want as well as know how to get what they want. This enables LGB youth to “come out” since they have that option as well as the freedom to choose it. They are allowed to venture out and make their own life story rather than follow a pre-written one left by their fathers and mothers. As our society becomes more accepting each generation has an easier time making their own pathways through life. This is a positive thing for the gay community where many still fear coming out to the public for fear of rejection. Now that our society has broadened its horizons from a heterosexual mindset to one full of lifestyle choices there is a chance that one day we will no longer think of people being afraid of coming out as a real problem. We may even get to that point in our society where sexuality is fluid and it is no longer critiqued if you’re with a man or a woman.

**Deadly Consequences**

Despite changes for the better in our society concerning people’s beliefs on homosexuality and their acceptance of it, there are still many misfortunate individuals who feel that there is something wrong with them or are afraid to reveal their feelings for fear of losing the people they hold most dear. Micah Lebson says:

Troiden (1979, in Kourany, 1987, and Gonsiorek & Rudolph, 1991), proposed a multi-stage model for the development of homosexual identity: first, feelings of homosexuality start to emerge in the early adolescent years; then the budding homosexual, in a “dissociation” stage, experiences doubt, questioning and denial, subconsciously tweaking perceptions of self and the legitimacy of societal beliefs about homosexuality while struggling to integrate new feelings into a mental schema; and finally, the individual accepts and discloses the alternative sexual orientation, harmoniously merging emotions and sexuality. (110)
These stages are fragile and with a small push in either direction something can go wrong. Lebson demonstrates how one may come about realizing their sexuality and possibly develop a negative view of themselves. If the young individual develops a negative mental schema of their own life there is a high risk of them manifesting suicidal thoughts or perhaps even attempting suicide in order to escape or find a meaning in life and what to live for. Lebson later mentions: Troiden believes that the likelihood of suicide increases every time one of the stages gets harder to reach. This in turn can develop into self-loathing and sexual confusion. The homosexual individual will then attempt to cope with this and will most likely fall into a depression where the only out that they can see is suicide (Lebson 111). This makes sense as any individual that is confused and misplaced will try to find meaning in their own lives, which for some can only be found at the verge of death. Unfortunately self-loathing and confusion are not the only factors that may be playing against the homosexual individual. Their family and friends may also be a contributing factor, as they may have rejected the individual or expressed their disgust for the homosexual’s choice of lifestyle. The confusion young homosexual’s may experience may be due to the beliefs they were brought up with. “Traditionally adulthood has been understood to be defined by four markers, two of which are based on a heterosexual imperative: exiting the education system, securing paid employment, marriage, and parenthood” (Valentine 484). This indicates that traditional values may in fact be a key component in keeping these individuals in check and in turn making them feel that who they are is not correct. “Closeted” individuals have to deal with not being out to their family and friends and at times this can put a stain on their mental health. They may have suicidal ideation or they may even attempt or succeed in suicide. Many are still not able to talk to someone they trust and therefore are torn apart from within in self-loathing turmoil.

Conclusion

Nature and nurture were believed to play equal parts in the lives of homosexual youth and since no strong evidence refuting this exists there is still a chance that it is so. Young homosexuals have chosen to “come out” for reasons that only they themselves know of. I have found, however, that since our society has become more aware of alternate lifestyles through the aid of media and gay groups in the public that people may be less afraid to show others who they really are. Also, as people are becoming more
aware they are becoming more accepting and in turn are being more positive towards individuals who are out or coming out. This affects the neurochemicals that Fisher discusses and keeps them at their original level rather than lowering them as the negative feelings of homosexuality are being removed from our society. Unfortunately some still choose to stay “closeted”. Some possibly for financial reasons, as they may fear that by “coming out” they will lose their family and friends and will no longer have a financial security that they would have if their family did not ostracize them. Others simply do not come out to others for fear of rejection and may become suicidal as they are torn from within with self-loathing and depression. There are many types of people and they live in different social groups, with different statuses, education levels, and life situations. All of these factors along with genetics and neurochemicals transmit to a homosexual identity and whether a young individual chooses to come out or not.

Bibliography


Guessing Success: Pop Culture, Science, and Logo Evolution
Natasha Mangal

Abstract
This project is designed to examine the various aspects of logo design, to judge what is effective or not, and to see if either pop culture or science determines the effectiveness of a logo. Several examples of current logos will be examined under the lens of various scientific studies concerning logo design. On one hand, the success and failure of several modern logos, each implementing some aspect of popular culture, will be discussed with consideration of both the professional opinions of graphic designers and the opinion of the public. These include the Gap logo, London 2012 Olympic logo, HSBC logo, and the Pepsi logo among others. Some of these examples will be compared to actual pieces and/or elements of contemporary art. Conversely, the scientific studies compiled which include research on the effects of chroma (color) and separate design elements will be applied to these various case studies of modern logos, determining success or failure based on empirical standards. A conclusion will be formed based on the result of this research, determining how effective each method is. Throughout this paper, several internet sources will be utilized, ranging from design blogs to news organizations. Due to the misleading nature of some internet content, only blog entries composed by active professional graphic designers will be consulted in this paper. In all, the research should make a case for the importance of utilizing science in design, a field previously thought to be an imprecise and highly uncertain art.

In the modern age, visual culture has become more important to companies searching to get their product noticed. The influence of an image has risen to an all-time high, as fewer words are used to attract consumers. As our attention spans shrink, newer and bolder approaches to advertising have been adopted in order to cope with the change. Over the past few years, marketing strategies in regard to print ads and consumer branding have become increasingly aware of the implications of life in a modern society. Less text is used to influence the consumer, and in lieu of explanations a new attention to subliminal messaging has emerged. There is, in fact, no greater indication of this change than when one observes the change in logos over time.

From the steady evolution of the Starbucks logo to the timeless “golden arches” of McDonald’s, it is through these universally recognizable symbols of popular culture that we can reflect on ourselves as a consumer society. What makes these advertisements successful, and do these particular elements stem from pop culture alone or does science also factor in? Mac Cato, graphic designer and author of Go Logo! admits that, as consumers in a modern society, “we are bombarded by iconic imagery every day; some estimates suggest that we see as many as 6,000 logos per day” (80). Logos are required to appeal and re-appeal to consumers constantly. When a brand makes the decision to
update its logo in exchange for a more contemporary one, the new design is the result of
an attempt to maintain the brand’s identity while gaining relevance in a new age.
Therefore, I will examine the qualities of logos in accordance with popular culture versus
science – which is a more effective source when considering logo design and redesign
schemes? To do so, several credible scientific studies conducted within the past ten years
were compiled, each of which attempt to verify that individual design elements can be
judged as either effective or ineffective definitely. In addition, modern day logo releases,
some of which include the Gap and Pepsi logo redesign program, were considered along
with the opinions of the public as compiled by news sources. Lastly, graphic designers
actively in the field who publish in books and in online design blogs were consulted and
their opinions on what is effective and ineffective in design were also considered.
Interestingly, although most logos in today’s society are formed modeling current trends
in art and culture, it has been found that not only can science adequately determine the
standards by which logos should be designed, but it can also explain a logo’s rate of
success or failure with accuracy.

In terms of pop culture, many aspects of society run on what’s currently trendy.
From what is on television to billboard advertisements to the runway, our tastes change
rapidly across the fields of our interests. However, trends are not born instantly, but are
instead the result of a culmination of ideas and opinions that spread into a publically-
accepted part of our lives. For instance, something as simple as the font currently used in
city signs and landmarks has changed over the years in order to embody a more modern
image. According to chief design editor and owner of milkandone.com, Neil Custard,
this particular font known as Helvetica is said to have, “a ubiquitous presence in the
contemporary visual landscape….it can be found everywhere, from signs, to logos,
posters to packaging. [It] is undeniably the most versatile font of the modern age.”
Furthermore, the idea of minimalism embodying the essence of present aesthetic trends is
a commonly accepted idea. Design author for Specky Boy Design Magazine, Jennifer
Moline, agrees with this assessment, adding that, “[today’s] rendering technology is
unthinkable, yet we still study Mondrian. Great minimalist work is striking, elegant, and
classic… a minimalist ad stands out from the crowd.” The examples of Helvetica and
minimalism appear as elements of pop culture that act as guidelines when designing not
only logos, but our world as we know it. Graphic designers must pay particular attention
to these types of cultural aesthetic trends at all times to effectively relate to its modern audience. In truth, to be successful in logo design means, as authors of *Pro Logo* Chevalier and Mazzalovo state, “being in phase with the mood of the moment without betraying the constants of [brand] identity, [which] requires talent, intuition and processes that are difficult to rationalize” (186). In this fast-paced world of changing minds and opinions, there arises a real dilemma of relevance for the graphic designers who attempt to effectively refresh a decades-old logo, for in abiding by what may be considered as currently “popular” in culture there still exists the possibility of failure.

Take for example the hushed October 2010 release of clothing design label Gap’s new logo (*Fig. 1*). In order to conform to a more modern and accessible image, the new logo uses clean lines, a simple blue box in the corner, and “the font of the modern age” Helvetica. As previously mentioned, these tenets of design (minimalism and Helvetica) are elements of pop culture that have become increasingly popular in the recent past. In this way, the design should, theoretically, appeal to modern audiences. However, the release of the logo triggered instantaneous backlash from the public. As documented in The Huffington Post, “the new logo was still live on the website…one week after the company swapped it in on gap.com. Confused fans took to Twitter, Facebook and tech blogs to complain… investors, competitors, and even potential employees may still be scratching their head that the company made such a mistake with something so important.” The company’s biggest mistake is considered to be the fact that the public was not consulted of the change before it happened. Increasingly, the power of public opinion, enhanced by social networking on the internet, has become quite the thorn in the side of graphic designers struggling to appease the masses. Even so, was there a way to predict the redesigned logo’s failure, even before Gap spent over two years agonizing over its release?

It is here that science attempts to quantify universal standards for logos. In order to respond to the “trial and error” method classically employed in advertising and marketing campaigns, the design of logos has entered the realm of qualitative data and reason. Chief Executive Officer Dr. A. K. Pradeep of NeuroFocus, a new age marketing firm that implements neurological studies into its marketing schemes, analyzed the failure of the Gap logo in his scientific study. The study, testing elements of design such as activeness, novelty and stylishness, was conducted using EEG sensors that measure brainwave
activity 2,000 times a second. The results of the study, Dr. Pradeep admits, were not a surprise. He explains that, “With the new design, the Gap lost critical ground at the deep subconscious level for this essential brand attribute [stylishness]. For a retail apparel marketer seeking to reach and motivate their target audience, this loss of brand value in the 'stylish' category marks a major cause for concern.” In fact, the study shows that the previous logo, “scored at an exceptional level, [whereas] the new logo failed to register at all for this critical attribute.” Although the logo used Helvetica, a font used liberally in modern society, it is in this way that it fails; it does not break new ground, nor does it have the same “novel” quality that the previous logo had, using an older styled serif font. The old style is what captured Gap’s consumers, and it is in this respect that consumers felt severed from a brand that they had been familiar with for years. "The Gap sells a lot more than just blue jeans today, but relegating the blue of the original logo to minor 'legacy' status in the new version loses that essential connection in the consumer's subconscious to the brand's core origins…Instead of honoring their past, unfortunately the Gap relegated that past to lower relevance," claims Dr. Pradeep. In these ways, science can effectively pinpoint issues with logo design, and can possibly help determine the success of future logos.

In the case of the Hong Kong and Shanghai Banking Corporation and the Bank of China, it was trends in contemporary art rather than science that were consulted in its change. During the 1980s, in order to accommodate a new, internationally-savvy business schema, these two banks adopted new logos that would embody a globally acceptable image. Researched by D.J. Huppatz in the advent of its new design, its praise was sung in the Journal of Design History. The new bank imagery, “discard[s] eagles, lions, tigers and similar ferocious fauna in favour of simplified versions of currently fashionable and expensive works of art” (359). This switchover, along with changing the bank’s name to an acronym, HSBC, has allowed for a universally-distinguishable image that is strong enough to speak on its own. The new logo features colors and shapes reminiscent of the Scottish flag and the cross of St. Andrew, hearkening back to the bank’s colonial history. But the shapes here do not merely echo that of a flag. As the previous quote implies, there is a resemblance to works of contemporary art that makes the new logo socially acceptable and effectively eye-catching. The effectiveness of the “Mondrian” aesthetic talked about before is apparent in this example. In fig. 2, the logo
It seems to bear a resemblance to modernist painter Mondrian’s “Tableau IV” in that it incorporates red, a primary color, in a similar formation of geometric shapes, creating a pattern. Even though this logo uses contemporary art, an element of pop culture, as the basis for its redesign, it can be seen that in some instances it can be effective. For this logo, not only do current trends in the art world present themselves, but there is a unique homage to the bank’s past (the “legacy” factor from Dr. Pradeep’s study) that makes the new logo successful.

Another example of a logo that takes queue from the trends of contemporary art comes in the form of the logo redesign for Pepsi. However, when Pepsi decided to “refresh” their logo in a 2009 campaign, the resulting logo received mixed reviews. The change is the result of what graphic designer Peter Arnell of Arnell Group deems, “‘an iconic graphic that’s also happy…a hybrid between what Pepsi is and its new attitude, the inspiration of a smile’” (Patel “Few Smiles”). As opposed to the classic wave logo, the new logo implements the same color scheme of red, blue and white, but sacrifices gradient changes for a simplified, flatter aesthetic. In his praise of the redesign, Collins remarks that, “whatever is hot, now and up-to-date is packaged and sent out – it’s Michael Jackson, it’s Britney Spears, whatever’s about to explode.” As opposed to consulting science, the logo was created implementing ideas from pop-culture. The cleaner font resembles the font of the contemporary age, Helvetica, while the flatness of the new logo hearkens to the particular “pop art style” of contemporary artists Rothko and Warhol (Fig. 4). However, as graphic designer Aviv comments, “‘Maybe Pepsi wanted the new logo to feel lighthearted, but instead it feels lightweight, especially for a brand of this magnitude.’” In this light, the change is seen as a detriment to the brand, severing pre-established associations with the brand’s recognizable 20th century “wave” in lieu of an abstract smile. In this case, mixed professional reviews of Pepsi’s monumental rebranding scheme, costing in the neighborhood of $1 million, contribute to a mixed public reaction. As strategy director of Frog design Mary Anne Masterson puts it, the new logo, “‘stepped away from its classic element instead of refining it…[placing] the burden on consumers to understand what the new ““smile”’ means’.” Brands and logos are supposed to be as didactic as possible to appeal to the masses in a positive manner, but with Pepsi’s updated logo consumers are left with a metaphorical question mark hovering above their heads.
Science, on the other hand, ventures to eliminate the question mark entirely. In actuality, scientific analysis shows that elements of design can be judged on an individualized basis. This attempt is made by scientists Pamela Henderson and Joseph Cote in “Guidelines for Selecting or Modifying Logos.” In this scientific study, several elements of design were tested separately in order to determine the most effective combination of design elements in a logo. Numerous factors were tested, including how “natural” the logo is, how organic the shapes are that comprise it, and how visually balanced the overall logo is. In all, 13 separate design elements were tested. It was determined that the best logos either generate high correct recognition (to the brand), positive effect with some recognition, or positive effect without thought to recognition; the mentality here is that even at its lowest point of recognition, when consumers fail to link the logo to its respective company, a good logo should at least leave a positive impression in the consumer’s mind. These three possibilities were found to possess different design qualities implemented together to form a unified logo. For high recognition logos (the “best” type of logo), they are natural, harmonious, have optimal amounts of elaborateness and exhibit repetition (24). The study specifies each element as follows:

*Natural* reflects the degree to which the design depicts commonly experienced objects. It is...representative and organic... *Harmony* is a congruent pattern or arrangement of parts that combines symmetry and balance and captures good design... *Elaborate* is not simply intricacy, but appears to capture the concept of design richness and the ability to use simple lines to capture the essence of something. It is comprised of complexity, activeness and depth... *Repetition* of elements occurs when parts of the design are similar or identical to one another (16-17).

As mentioned before, the Pepsi logo’s redesign was successful in some respects, but a failure in others. This problem of interpretive ambiguity is also explained by this scientific study. The logo is successful in that it incorporates a natural form, that of a wave. Harmony is also achieved through even use of color, much like the harmony achieved through the yin-yang symbol. However, it is a failure in that it lacks elaborateness and repetition. In fact, the practice of simplification when redesigning logos is generally unsuccessful. Henderson and Cote find that, “Current trends lean...
toward selecting very simple logos or simplifying existing logos…we recommend against this practice. Slightly more elaborate logos should evoke more positive affective evaluations and will maintain viewer interest and liking over repeated exposures” (21).

In the context of the Pepsi logo overhaul, the elaborateness of the previous logo, one that implemented light and shadow creating a more 3-D effect, was much more successful than the new logo which sacrifices the gradation of color for flat tones of red and blue. As one designer criticizes, the redesign sacrifices the brand recognition that had been built up during the 90s, eliminating the “repeated exposure” element of the logo that had made it easily attributable to the brand it represented. Thus, according to this study, the failure of this logo redesign can be explained by science. Perhaps if the logo were accompanied with its namesake, Pepsi, it may still have the chance to gain success.

There are more instances of big budget, supposedly “modernized” logos falling victim to criticism. Take the London 2012 Olympics logo for instance, a logo that cost upwards of $1 million to design. Praised by chairman of the games, Seb Coe, the design is said to “act as a reminder of [the] promise to use the Olympic spirit to inspire everyone and reach out to young people around the world.” The target audience for this logo is established as the younger generation, but it is precisely from this target audience that the logo receives the most scrutiny. According to a user opinion on BBC’s website, “it looks like a logo designed for young people by old people that don’t understand young people.” The intended message of the logo, one of inspiration, is entirely sidestepped as backlash seems to be the only thing that the logo has been able to achieve. In its defense, as International Olympic Committee President Jacques Rogge remarks, “the brand launched today by London 2012 is…an early indication of the dynamism, modernity and inclusiveness with which London 2012 will leave its Olympic mark.” Even though it is made clear that the design is a reflection of modern and contemporary aesthetics, notably incorporating similar design elements to the HSBC logo by having flat colors and solid geometric shapes, its intended effect is less than positive. According to a public poll on the BBC website, the logo rating has consistently stayed at around 80% disapproval, where users voted the lowest possible score out of 4 on the design. Unlike the praiseworthy HSBC logo that uses a similar design strategy which makes use of modern art, the design for the 2012 London Olympics fails to land a firm grasp on elusive
success. Sometimes not even money, even at the cost of $1 million, can grant a logo immunity from often harsh public opinion.

Thus, science attempts to prove why, even on an international level, the logo is a failure. In “Logo Selection and Modification Guidelines: an empirical international validation in Chile”, scientists Sergio Olavarrieta and Roberto Friedmann utilize the design characteristics described in the previous study conducted by Henderson and Cote, and implement a similar experiment in Chile to see whether or not the study could be applied on an international stage. The study found that:

Correct recognition can be influenced by natural and repetitive designs in both U.S. and Chile. Another common factor...is the importance of harmony in order to generate a positive affect...The overall conclusion is that the logo design characteristics identified in the US-based literature, do affect consumer responses on a cross-cultural setting, thus adding value to the original framework” (17-18).

In considering this information, one can analyze the London 2012 logo failure in this context. As an international example of a logo, it is especially important for the logo to gain a general sense of positive affect amongst a diverse, global audience. First, the logo is not natural – it only exhibits the numbers 2012 in an abstract design. Although somewhat repetitive, the logo lacks harmony in that the parts are each abstracted and disconnected. In applying the characteristics discussed in Henderson and Cote’s study, the logo is neither natural nor elaborate design-wise. There are no recognizable forms within the logo other than abstracted numbers, and its use of a singular color encapsulated within a few blocky shapes leaves its audience cold. Evidently, the general sense of public discontent over a logo design can be explained by empirical studies of logo design elements, even on an international level.

In logo designing, an important factor is also color. In the scientific study conducted by Gerald F. Gorn, Amitava Chattopadhyay, and Tracey Yi, the objective focuses on grounding logo color choices into a psychological study that can be used as a standard. Their study, entitled, “Effects of Color as an Executional Cue in Advertising” found that the shade of a color (the lightness or darkness of a color) dramatically influenced the salience of a logo to the consumer. The study suggests that, “Higher levels of chroma (the intensity of a color) and value influence feelings of excitement and relaxation [towards a brand], respectively” (1397). Indeed, as the researchers analyze their results...
in the context of pre-existing successful brands, the study verifies itself. In the case of brand recognition, it was found that, “changing chroma or value might create the desired feeling state while still maintaining the hue associated with the product. A good example is provided by the redesign of the Ritz cracker advertising and repackaging in the early 1980s. Ritz kept the red hue but used a higher chroma level than in previous efforts, effectively making ‘Ritz look ritzier’” (1398). In this way, scientific evidence has the ability to not only determine the best design elements to use, but can determine the ideal types of colors to use as well with very minimal guessing required.

Thus, it has been found that logo redesigns in the modern age have corresponded more to the current trends of popular culture, adopting stylistic guidelines found in pieces of modern and contemporary art. However, along with the various recent scientific analyses of logo designs, the most successful logos can be seen to have the characteristics designated as the most successful in experiments. As an age that is highly invested in the power of scientific research, more marketing firms should look to science to verify their initial designs and updates to designs. If current scientific studies concerning logo design elements are consulted instead of the ever-wavering public infatuation with various elements of popular culture, logo design no may longer have the risk of hit-or-miss; it can possibly “hit” every time.
Visual Aides:

Fig. 1 – Original Gap Logo (left), Redesigned Logo (right)

Fig. 2 – HSBC Logo (left), Piet Mondrian’s “Tableau No. IV” (right).

Fig. 3 – London 2012 Olympic Logo

Fig. 4 – (from left) Rothko’s “No. 301”, Pepsi’s 2009 redesigned logo, Warhol’s “Flowers”.

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Bibliography


Identity and Relationships on the Internet: Are We Being True to Ourselves?
Lester Maceren

Human communication has undoubtedly changed ever since the Internet became a part of modern day society. In the past, letters and phones were the most common tools used in order to communicate with others from a distance. Now, for many, the Internet is a major part in keeping contact with family, friends, and acquaintances of all sorts. Email has become a replacement for “snail mail” letters since it can send a message to someone across the world in a matter of seconds. Instant messaging and chat rooms allow for real-time conversations between two or more people, no matter how physically far apart they are. Message boards and other online communities allow for the creation of friendships between people who share interests but may never have the chance to meet offline. The Internet has quickly become an influential part of American society. It is important to consider how it affects communication right now, and how it can affect communication in the future.

My interest in online communication and identities come from my own experience using the Internet. I became involved in an online community and became friends with a small group of users; we all shared the same common interest (a certain video game that is playable online), and we began to appreciate each other even outside the game. In the time that I was involved with the group, we became close to one another, sharing secrets and personal aspects about our lives, and some even expressed attraction to other members. After a lot of time had passed, I also discovered these people faking several aspects about themselves; one close friend of mine had faked her appearance, name, and possibly her gender, while another continuously lied about personal details about himself that he had shared with us. Considering none of us had known each other before meeting on the message board, I began to think about whether friendships that are held over the Internet could be as successful as those that are held offline, and I also questioned why people would fake their own identities when given the chance. To answer these questions, I had to research aspects of human communication, psychology, and the technology that brings people together.

One important part of human communication is not the conversation itself, but how the people involved present themselves. We do this offline all the time; we dress up appropriately for job interviews, we act on our best behavior when meeting a significant
other’s parents, and we understand that it might not be appropriate to tell jokes at a
funeral. To understand how people may focus on self-presentation online, consider the
field of online dating, where a person signs up on a specific website (such as
eHarmony.com, Chemistry.com, or Match.com), fills out a profile with pictures and
personal information about him or herself, and then contacts others as prospects for real
world conversation.

The study “Managing Impressions Online: Self-Presentation Processes in the Online
Dating Environment” uses interviews in order to examine how members of a large online
dating site control their virtual appearance in order to make themselves more appealing;
those same members look for signals that are unintentionally expressed by others in order
to determine whom they would like to meet. The authors of the study explained the
importance of cues in both online and offline communication; cues that are given are
intentionally conveyed by the communicator, such as the person’s spoken words, while
cues that are given off are unintentional, such as body language and other forms of eye
contact (Ellison, Heino, and Gibbs). They then explain three forms of the self: “the actual
self (attributes an individual possesses), the ideal self (attributes an individual would
ideally possess), and the ought self (attributes an individual ought to possess)”. The actual
self is how someone is in the “real” world; if a man weighs 200 pounds then his weight is
a part of his actual self. The ideal self is what an individual wants to be like; if the man
wants to lose weight and be thinner, that is the ideal self that he is striving to become.
The ought self is what an individual feels that he or she should be; if the man wants to
lose weight because he feels that he should be healthier, then that is his ought self.

With the virtual nature of self-portrayal and communication in an online dating
website, there is a higher focus on controlling one’s cues that are given off in order to
show oneself as closer to one’s ideal self (Ellison, Heino, and Gibbs). The majority of
people surveyed, however, reported that they tried to strike a balance between the
accuracy of their information and the desirability they want to show to potential dates;
this is because most of the subjects “expressed incomprehension as to why others with a
shared goal of an offline romantic relationship would intentionally misrepresent
themselves” (Ellison, Heino, and Gibbs). There is also an element of competition that is
present in portraying oneself; people want to look as attractive as possible, and that
means relying on every tool that is available, including the ability to control what appears

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on one’s online profile. This is similar to what people do offline in order to appear
favorable for job interviews, perform well in sports, and get good grades in school;
whether the things people do in some cases are actually legal or admirable (such as
steroids or cheating on tests) is another question. In online dating, it was in the subjects’
best interests to tweak their online persona in order to accomplish their goals, and most, if
not all of them were able to use communication cues to their advantage.

There are websites that are similar to online dating sites in that users want to portray
their ideal self; there are other sites that are significantly more chaotic and provocative,
with exhibitionists leaving little to the imagination. One such website is Chatroulette, a
place where anyone with a webcam will be randomly matched up with somebody else
currently on a webcam. There are no filters or censors; a person will see how others
choose to portray themselves, no matter how unusual or obscene the setting. Sam
Anderson, a writer for New York Magazine, gives an account of his experience on
Chatroulette; he describes the website as chaotic and untamed, similar to the Wild West.
Anderson explains that some of the people he was matched with were shamelessly
soliciting or engaging in sexual activity while on camera, and others would display
obscene images; one user displayed a picture of a man who had hanged himself, which
was “terrifying even after you realize it’s fake” (Anderson). That brings up the possibility
that with websites such as Chatroulette, someone could seriously choose to hurt
themselves in front of an audience, and thanks to the untamed nature of the site, it would
be hard for anyone to do anything about it.

In his time on Chatroulette, Anderson explains that there were some people with
whom he had “normal” exchanges; he found teenagers and adults who were interested in
regular conversation, and there were times when he admitted to “dancing” with the
people on the other end (both parties danced along to loud party music in the
background). The fast-paced interaction is comparable to “Tweeters” drifting through
short, concise Twitter posts where attention might only be held for a few seconds before
curiosity persuades them to move on to the next person (Anderson).

It is obvious that self-portrayal on a website like Chatroulette does not follow the
same rules as online dating sites. In online dating, there are certain strategies that people
use in order to not only show off their ideal self, but to see who may be compatible with
them; on Chatroulette, anything goes, and people are not afraid to show themselves in

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whatever way they desire, no matter what the other person may think. There seems to be no need for an *ideal self* and it may be that the *actual self* is all one really needs in order to obtain fulfillment there; of course, the actual self that one portrays online may be different from the actual self one portrays offline. Also, the portrayal of oneself on Chatroulette may promote a different sort of competition than online dating; people on Chatroulette may try to gain as much attention as they possibly can. The people that Anderson had encountered on the website, for example, may have done outrageous things (such as the person who displayed a picture of a person who had hanged himself) in order to be noticed by as many people as possible. It seems that Chatroulette allows and even encourages people to discard the social norms that the offline society pushes onto them, and that is one reason that they may do the things they do.

Just as Chatroulette shows that it is possible to “change” your identity through video on the Internet, it is also possible to define your identity only through text. MUDs, or Multi-User Dungeons, are games in which a group of people collaborate by typing out their actions and, indirectly, their identities. There, according to Sherry Turkle, professor of Sociology of Science at MIT, people “become authors not only of text but of themselves, constructing new selves through social interaction” (Turkle, “Who Am We?”). This is because MUDs give several players a chance to become a new person, or even several new people; for many, creating characters could often lead to showing off different sides of themselves that they would not be able to show otherwise. Turkle, in her book, *Life on the Screen: Identity in the Age of the Internet*, quotes a student who took her MUD personas very seriously: “I am always very self-conscious when I create a new character. Usually, I end up creating someone I wouldn’t want my parents to know about. It takes me, like, three hours. But that someone is part of me” (Turkle, *Life on the Screen* 260). Even though these games were mainly played in the 1990s, before graphical computer games became more popular and accessible, the concept of creating a virtual identity remains the same today.

What could make creating a virtual character so different from oneself so appealing? Turkle wrote about the story of Stewart, a graduate student who lived a quiet, reclusive life and spent over 40 hours a week on a German MUD. Stewart’s heart trouble stopped him from being able to do a lot of strenuous, physical activity, and he felt that MUDs “allow him to be a better version of himself” (Turkle, “Who Am We?”). This goes back
to the concept of the ideal self, but in MUDs, a player basically has complete control over everything in his or her own portrayal; as stated earlier, a MUD player can create a character from scratch, and the player can control how everyone else will see the character, and therefore, the player. While Stewart had little luck in relationships in the outside world, he was able to charm one of the female players (or more specifically, the female character), whom he ended up “marrying” in-game. Though the wedding was only virtual, some of the players actually met up in Germany and held a celebration, complete with champagne; even though he was not physically with the rest of his MUD friends, Stewart felt that this was an escape, and it gave him a sense of temporary fulfillment (Turkle, “Who Am We?”). However, Stewart admitted that in the end, he felt worse because he thought that everything that his character, Achilles, had accomplished is impossible for him; he was able to portray his “ideal” self over the Internet, but he thought that he was powerless to do anything about his offline life, and so he continued to have low self esteem despite what he had accomplished online.

The story of Stewart shows how people can build bonds through a medium such as the Internet; Stewart’s case is different from the case of online dating in that he may never meet his online friends face-to-face. This may seem like an unconventional way to form and strengthen relationships with others, but there are studies that show that it is possible to foster emotional ties through Internet communication. A study, “Friendships through IM: Examining the Relationship between Instant Messaging and Intimacy” surveyed 138 college students at an American university about their IM (instant messaging) use; the survey took into account how long they actually talked to people through IM, how long they left the program on, but did not actually talk (idle time), and where they used the IM program. The researchers also asked the students about how intimate they were with the friends they talked to through IM. Though the group of subjects in the study was fairly small, its results support the contention that “there is a positive relationship between the amount of IM use and verbal, affective, and social intimacy” and that IM use actually encouraged face-to-face interaction later on (Hu et al).

Hu’s group listed some possible factors that could lead to increased intimacy through IM use. One possibility is that a private atmosphere would encourage an IM user to take part in more intimate conversation; another is that the physical environment plays a part in whether IM users would be willing to disclose any personal or private issues.
they want to talk about (Hu et al). For example, if a person is at home chatting with someone else through IM, then they will be more likely to have an intimate conversation over the Internet than if he or she were at the campus computer lab. The study also mentions that people tend to use IM when they are “at home, late at night, and separately, where they are vulnerable and lonely” (Hu et al). Since IM is synchronous in that two participants are communicating in real time with one another, it encourages more personal conversations than asynchronous forms of communication such as text messaging and email (Hu et al). Though this study did not take into account whether or not friendships were established before IM, it is a sign that online communication can lead to emotional, personal conversations between two people.

Intimate friendships can be formed by individuals who share common interests, beliefs, or goals; this goes for both offline and online relationships. MMORPGs, or “massively multiplayer online role-playing games”, are games that can be played with hundreds, thousands, or even millions of people on the Internet; think of them as a much more advanced version of a MUD, with graphical avatars instead of plain-text descriptions of characters and actions. These games, including the popular “World of Warcraft” (also known as “WoW”), are known for having a lot of social potential since players tend to join alliances with other players; they can then work together to complete quests and earn virtual money, defeat monsters, become stronger as fighters, and better compete against rival groups in battle.

The study “Social interactions in massively multiplayer online role-playing gamers” by Helena Cole and Mark D. Griffiths explored the social activity of 912 MMORPG players from 45 countries through the use of an online questionnaire. Their results show that about three quarters of both the male and female groups studied (76.2% of males, 74.7% of females) reported having made good friends through the MMORPGs they played; among those subjects, 55.4% of females and 37.6% of males reported wanting to meet their online friends in real life (Cole and Griffiths). The study also shows that 31.3% of the sample reported being attracted to another player at one point in time, and 49.8% of those players had said that the attraction was mutual. About 45.6% of the participants said that their online friends were comparable to their offline friends, and 39.3% of players reported having discussed sensitive issues (such as family problems and losing loved ones) with other players in the game (Cole and Griffiths). This study shows
how online friendships can consist of the same qualities as their offline counterparts, and how online friendships can lead to a desire to become interact even outside of the online community, or in this case, the online game. For people like those in this study, friendships can exist without the need of face-to-face communication; they are pen-pals of the digital age.

Just as Hu’s study showed that the use of IM can facilitate intimacy between friends who already know each other, MMORPGs can do the same for people who have never met offline. Some possibilities are that the games are designed to encourage social interaction between players. In WoW, for example, social encouragement can be seen through the use of “friend lists” which keep track of an individual’s in-game friends (Chen and Duh). There are also “parties,” which are small groups of 2-5 players that can communicate privately through their own chat channel, and “raids,” which are larger groups of up to 8 parties for tasks that smaller groups may not be able to handle (Chen and Duh). Quests can encourage players to work together for a certain goal, and while players may team up for a quest and never speak to each other again afterward, the quests could allow a common objective for players to start communication; this is similar to how people in the same club or sports team can establish friendships based on their shared interests and goals. Chen and Duh also give examples of out-of-game social interaction that was facilitated through World of Warcraft, including a 53-year-old mother who plays and communicates more with her son through the game; they also acknowledge that the game can have adverse effects on players’ offline social interaction, as some “value the ability to get away from offline relationships through the game” (Chen and Duh). People can choose to use Internet communication either as a complement, or as a replacement to face-to-face interaction, and it gives users a lot of control with how they communicate.

The Internet allows people to communicate with others without ever “seeing” or “hearing” the person on the other side; it also allows us to portray ourselves more carefully in order to make others see us a certain way. But what if someone completely falsifies a major aspect of his or her identity? Gender-swapping is portraying oneself as the opposite gender. Turkle explains that the concept of gender-swapping has existed since the time of Shakespeare, as the play As You Like It “uses gender-swapping to reveal new aspects of identity and to permit greater complexity of relationships” (Turkle, Life on the Screen 215). On the Internet, it’s not uncommon for one to have to simply click on
“Female” in order to be identified by that website, and its community, as female. However, technology does not change the fact that one would have to keep up a female persona, which, according to Turkle, could be “psychologically complicated” and cause one person to be “embarked on an enterprise that is not without some gravity and emotional risk” (Turkle, *Life on the Screen* 213). With today’s technology, gender-swapping can be done fairly easily within online communities such as those found on message boards, chat rooms, and MMORPGs.

A study by Zaheer Hussein and Mark D. Griffiths, “Gender Swapping and Socializing in Cyberspace: An Exploratory Study”, involved giving an online questionnaire to 119 volunteers on message boards specifically for online gamers; they were asked several questions about how MMORPGs affected them in a social context, and they were also asked about their experiences with gender-swapping. The results showed that 54% of males and 68% of females surveyed actively played online as characters of the opposite gender (Hussein and Griffiths). The motivations for why people changed their displayed gender when playing online varied from person to person. One female participant explained that she was tired of “creepy guys hitting on [her] female characters” and played as a male character in order to avoid those uncomfortable situations; on the other hand, male participants said that in MMORPGs, “if you make your character a woman, men tend to treat you [far] better” and “if you play a chick and know what the usual nerd wants to read, you will get free items” (Hussein and Griffiths). Others in the study showed that they wanted to switch genders in order to experiment with their identity, or just “for fun”. The statements from the subjects in this study demonstrate that gender-swapping can be used in order to take advantage of other people, to avoid the stigmas that may come with being of a certain gender, or simply as a social experiment that is much more difficult to perform in the offline world. What could these results show about how people communicate with people online, especially when both parties have never met face-to-face?

There are studies that show that Internet communication may be used as a “replacement” for face-to-face human interaction. Some may think that with the Internet, there is no advantage to talking to people in reality because they have so much more control when communicating online. However, the Internet is not the only modern technology that can have this effect; cell phones, portable media devices, and video
games are all examples of technology that can substitute for “real” communication. The Internet is merely a frame for a larger concept in human communication; technology in general, it seems, is making us, as a society, less skilled in face-to-face social situations.

Imagine a world where humans are isolated from one another, living in self-sufficient cells without need to leave the confines of their rooms and interact with one another. They have the ability to keep music playing in the background all the time, devices that allow them to talk to others without anyone ever seeing their faces, and machines that perform the simplest of tasks for them. Most of the inhabitants feel that they have no need to physically go out of their way to talk to others, and they have no desire to enter the outside world if they do not have to. Does this world sound familiar? This is actually the world portrayed in E.M. Forster’s short story “The Machine Stops”; despite the fact that it was written in 1909, over one hundred years ago, it portrays an eerily accurate prediction of what our world is starting to become. Much of the technology featured in his story now exists in one form or another; cell phones allow for easy, controllable communication, mp3 players allow us to drown out the outside world with our own music, and computers make many tedious tasks much easier to accomplish. People in the story feel that they do not need to have physical interaction with others, just as some people in today’s society feel that computers and the Internet are good enough to substitute for face-to-face human communication. Lastly, the people in the story felt that technology, or “the Machine” as they called it, was their god, as shown in this excerpt:

“The Machine,” they exclaimed, “feeds us and clothes us and houses us; through it we speak to one another, through it we see one another, in it we have our being. The Machine is the friend of ideas and the enemy of superstition: the Machine is omnipotent, eternal; blessed is the Machine.” (Forster)

In “The Machine Stops”, technology had become more than something to help human lives; it had consumed human lives. At the end of the story, when the Machine grinds to a halt, the result is the destruction of the totally dependent society, leaving only the Homeless, or the few people who had chosen to live in the outside world. It is a scary, but possible prospect, similar to what our world can become if we continue to let advancing technology render us so dependent that it devours what makes us human.

Though human civilization has not been driven to the extreme depicted in “The Machine Stops”, technology has already begun to change the way we act around other
people. Christine Rosen, writer for The New Atlantis, explains how devices like TiVo and iPods are affecting society, and not necessarily for the better. TiVo is a digital video recorder that allows users to control when they can watch their favorite television shows, eliminating the need to be at a TV when programs are broadcast. According to Rosen, evidence has suggested that “TiVo users actually end up watching more hours of television every week, including shows they might have skipped without regret if they were not available “on demand”.” Instead of using TiVo’s efficiency to watch less television, people use it to watch even more, reducing the time that they could be doing other things, such as working, reading, getting physical exercise, or socializing with others. People are one step closer to becoming like those in “The Machine Stops” who simply isolate themselves within solitary cells in order to fulfill their needs for entertainment.

Rosen also considers how iPods and other portable mp3 players can cause people to become less social. With an iPod, one can listen to his or her own personal soundtrack and pay less attention to things happening in the outside world. People walking down the streets, sitting on the bus, or waiting in line for something can use their earphones as a sort of barrier between themselves and the other people around them. Rosen says that “[iPod users] might be enjoying their unique life soundtrack, but they are also practicing ‘absent presence’ in public spaces, paying little or no attention to the world immediately around them.” Given the popularity of mp3 players in recent years, the technology can discourage people from talking to others, especially strangers who they might have talked to if they had not been listening to their music. One user explained that because of the iPod he was “increasingly numb” to his surroundings and often “trapped in a self-imposed bubble” (Rosen). Similarly to TiVo, the increased control given by the iPod gives us more incentive to not talk to others, isolating us from one another, just as Forster envisioned.

Does this mean that technology will someday drive society to the point where we will be physically and socially separated, even mentally and emotionally detached from ourselves? There is no guarantee it will not; but because of the conventional wisdom involving technology (faster is better, smaller is better, and overall, scientific progress is better), it is unlikely that we will be able to control, let alone reverse, advancing technology. This means that the Internet will continue to get faster, spreading to every
nook and cranny in the planet. Individuals can moderate their own use of devices like laptops and music players in order to keep themselves socially active, but a widespread reversal will be much more difficult to accomplish, as human civilization has often proved to move in the direction conventionally considered as progress without looking back. This has happened throughout human history, including notable inventions such as the printing press, the automobile, and the airplane. Though we humans need to learn how to incorporate advancement as a complement to our social, physical, and mental lives, instead of as a replacement, the deep rooted tendency to avoid the effort says that, unfortunately, few will.

Of course, this does not mean that technology only has downsides. As the studies referenced above show, the Internet can be used as a tool for more than just communication; it has become a new medium for social activity. The Internet, like most tools, must be used carefully; it has tradeoffs, and there are both benefits and costs, though human nature sometimes stops us from noticing the latter. Friendships and relationships can be made in cyberspace, but one should always be aware that persons on the other side may not be exactly who they say they are. Even though the Internet requires two people to communicate through a digital medium, that does not change the fact that real bonds can be formed; emotions are still present online, and the relationships that can be created may be just as complex as offline relationships, if not more complex due to the nature of the medium. Online communication might fool some people into thinking that offline interaction is unnecessary, but such extremism will only lead to increasing social isolation, potentially severing the ties that are vital to any and all societies. Only through moderation, caution, and most importantly, vigilance, can people use online communication to its fullest potential without sacrificing the deep rooted need for face-to-face human interaction. People who have no choice but to use modern advances to communicate would have new doors open to them, while everyone else can still communicate in both new and traditional ways. Technology has the ability to change identity, communication, and society as we know it; we should not let it change what makes us human, nor should we let it stop us from being true to ourselves.

Bibliography


Big Breasts, Bigger Burdens
The Paradox of Breast Augmentation Explained Using the Theories of Paul Tillich
Justin George

In any civilization, individuals and society are inextricably linked, with each directly influencing and informing the other. Societal values and expectations can be very harsh and rigid. For fainthearted people whose lives are dictated by standards of beauty as seen through society’s lens, who strive to reach success as defined in society’s dictionary, and who measure happiness by society’s ruler instead of their own, the consequences of not measuring up can be devastating. These individuals, directly influenced by the imposition of society’s unrealistic yet ever-present standards, sometimes resort to drastic measures to bridge the widening gap between their perception of themselves and their perception of society’s ideals. They try to stop a feeling of emptiness creeping inside them. In doing so, they lay everything on the line, risking it all for one last push for acceptance. This is the situation that many impressionable women find themselves in contemporary society. It is no wonder, then, that many of these same women opt to undergo potentially dangerous cosmetic procedures, such as breast augmentation, in the hope that their appearance might finally be in accordance with prevalent societal standards of beauty. In the process, they end up risking their physical and mental health and throw away any prospect of happiness they may have previously clung to. Many even become depressed and suicidal, bringing the irony of the matter full circle. What was meant to bring these women happiness and greater acceptance and esteem in society ends up throwing them into despair and further alienating them from their surroundings. Scores of scholars have tried, largely unsuccessfully, to account for this phenomenon. However, a meticulous understanding of Paul Tillich’s Dynamics of Faith, and his ideas of ultimate concern, idolatrous faith, and existential disappointment can be applied to make sense of this disconcerting paradox in the contemporary culture.

A growing number of individuals have a natural obsession with measuring up to the standards set by society, regardless of the consequences. What could possibly be driving these women to change their bodies and forgo their natural appearance in favor of artificial beauty? Not just society in general, but even the elite medical community has shifted their position to accommodate and succumb to society’s pervasive standards of beauty. In a 1982 petition from the American Society of Plastic and Reconstructive Surgeons (ASPRS) to the Food and Drug Administration, the ASPRS stated “there is a
substantial and enlarging body of medical information and opinion…to the effect that these deformities are really a disease which in most patients result in feelings of inadequacy, lack of self-confidence, distortion of body image, and a total lack of well-being due to a lack of self-perceived femininity” (Mellican, 8). According to this petition, experts claimed the psychological effects of small breasts were reason enough to risk the physical health of these women. Small, fully functional breasts are referred to as deformities. This is when the study of psychological factors influencing breast augmentation began to emerge. If the educated doctors of a society are themselves unwilling to resist the allure of reaching the ideal standard of beauty as dictated by society, then there is no one left to argue in favor of realistic goals. If the doctors of a society bend to its fickle expectations, referring to perfectly natural breasts as deformities, then there is no way to expect the malleable mind of insecure women striving to fit in to be able to resist. Tillich gives the following example: “If a national group makes the life and growth of the nation its ultimate concern, it demands that all other concerns, economic well-being, health and life, family, aesthetic and cognitive truth, justice, and humanity, be sacrificed” (2). Society has imprinted aesthetic perfection as the “ultimate concern” in this subset of women as well as the medical community. The subjective standards of beauty have managed to deteriorate the objective standards of health. The misguided women seeking breast augmentation are fully supported by medical society while both sacrifice all things— including objectivity and health, as Tillich describes.

This sacrifice of all other things in favor of the one “ultimate concern” has been studied by Paul Tillich, and could explain parts of this phenomenon. Every human has one thing that they care about more than anything else in the world which Tillich refers to as their “ultimate concern”. People can be ultimately concerned about anything, including personal success. In his work, The Dynamics of Faith, Tillich states,

Faith is the state of being ultimately concerned: the dynamics of faith are the dynamics of man’s ultimate concern. Man, like every living being, is concerned about many things, above all about those which condition his very existence, such as food and shelter. But man, in contrast to other living beings, has spiritual concerns- cognitive, aesthetic, social, political. Some of them are urgent, often extremely urgent, and each of them as well
as the vital concerns can claim ultimacy for a human life or the life of a social group (1).

A person’s ultimate concern is the one thing which they would be willing to sacrifice everything else to fulfill. In the case of breast augmentation and women, it could mean sacrificing even their health and sanity. The sheer volume of patients undergoing breast augmentation may suggest that this procedure is safe; however medical reports reveal that the insertion of implants with potentially harmful chemicals into the body is extremely dangerous. The American Society of Plastic Surgeons, one of the leading organizations documenting the effects of cosmetic surgeries, found that 289,328 women have undergone breast augmentation in the United States in 2009 alone- an increase in 36% between 2000 and 2009, making breast augmentation the most frequent US surgical cosmetic procedure for 2009 (2010). These numbers are alarming because of the dangerous chemicals that are present in breast implant shell envelopes and gels. Methyl ethyl ketone, acetone, and known carcinogens like benzene can leak out of ruptured implants leading to cancerous growths. Even intact implants can obscure cancerous growth from mammograms and are thus still dangerous. Furthermore, the actual procedures many surgeons practice today are no more advanced than the procedures performed a decade ago. Dr. Dowden is a plastic surgeon specializing in the newest, safest form of breast augmentation called transumbilical breast augmentation. According to Dr. Dowden many surgeons are reluctant to perform this new procedure in spite of the many safety improvements. He states, “Surgeons may be afraid to learn something new or may be wary of something unfamiliar, and they may see no justification for changing their current practice methods in light of the cost of the equipment and the time needed to learn the technique” (Dowden, 56). There is an insurmountable amount of evidence that breast augmentation has harmful effects on the physical health of a patient, and there has been no major change in the practice of this procedure in the past ten years. But, for women seeking to embody and showcase society’s standard of beauty, these horrendous side effects are of little concern. They are occupied only with their “ultimate concern” of reaching society’s standard of beauty; they care about it more than anything else in the world, no matter the cost or the consequence.

For additional insight into the link between breast augmentation as an enabler of aesthetic perfection and Tillich’s idea of “ultimate concern”, one need not look further
than the work of Julie Slevec, a psychologist studying the attitudes towards breast augmentation in women. Slevec’s study focused on the driving forces and catalysts that spur women to choose breast augmentation as a justifiable course of action. In Slevec’s statistical analysis of attitudes toward cosmetic surgery, she found that

Appearance investment, aging anxiety, and television exposure were unique predictors of endorsement of social motivations for cosmetic surgery, whereas body dissatisfaction, appearance investment, and television exposure were unique predictors of actual consideration of cosmetic surgery (65).

An analysis of her work shows that while many of those catalysts are internal, such as aging anxiety, there are other very important external factors that shape the psyche of these women, such as television exposure. These external factors are no doubt a product of social expectations and unrealistic ideals promoted by society. These external factors shaped by society and repetitively drilled into the minds of women everywhere end up elevating what should normatively be nothing more than a superficial preliminary concern, to the hallowed levels of “ultimate concern” within the minds of these women. Once this superficial concern has reached that sacred height in their minds, then it requires a certain amount of faith to be further propagated. Once these women have the faith that they can achieve this fulfillment of their ultimate concern, and believe that it is within arm’s reach, they are willing to go to any length, no matter how dangerous, to have their faith come to fruition. Tillich explains, “Without the manifestation of God in man the question of God and faith in God are not possible. There is no faith without participation!” (116). A connection between an ultimate concern and the act of faith is not possible without first having faith in the “ultimate concern” itself. Therefore, it can be inferred that women who seek aesthetic perfection are not mindlessly following social trends, but are rather actively engaging in an act of faith, which they strongly believe will aid them in the realization and fulfillment of their ultimate concern of aesthetic perfection.

This supports Tillich’s theory that faith is primarily an internal process, even if the catalysts may be largely external. After aesthetic perfection has been elevated to the level of “ultimate concern”, societal standards play a far less vital role. Tillich goes on to say “he who has faith is separated from the object of faith. Otherwise he would possess it. It
would be a matter of immediate certainty and not of faith” (116). As Tillich describes, there is a balance between doubt and certainty in order to have faith. If an individual already perceived herself as aesthetically perfect, then this could not become an “ultimate concern” and the individual would not engage in the act of faith. Women who undergo cosmetic surgery do indeed feel aesthetically imperfect. More importantly, they feel pressured to attain that level of perfection in order to belong to society. This is the exact limbo women who seek breast augmentation are trapped in. They do not perceive themselves as aesthetically perfect; therefore, there is a disparity between the individual’s state of imperfection and their fulfillment of the ultimate concern. The motivation behind breast augmentation is defined in spiritual terms by Tillich. He states that, “individuals seek to eliminate the separation and live peacefully fully in faith. To attain such a state is a natural and justified desire of every human being” (117). As they begin to perceive aesthetic perfection as attainable, the faith manifests itself within them, giving them the hope and the belief that they will reach society’s standards and be fully accepted. Women seek to eliminate doubt and are motivated to undergo breast augmentation in order to “live peacefully fully in faith” - a natural response by any human being to societal pressures.

Although there are many negative side effects associated with breast augmentation, there are also many supporters of the cosmetic procedure. Proponents for breast augmentation argue that women who undergo this procedure are not disgruntled with their general appearance. McGrath, a plastic surgeon and consultant for the Food and Drug administration, states that “cosmetic surgery patients do not demonstrate greater investment or dissatisfaction with their overall body image compared with controls” (3). McGrath claims that women who undergo breast augmentation are merely dissatisfied with their breasts and are identical to other “normal” women in every other way. He claims breast augmentation patients do not have an overall negative self-image and are not any more preoccupied with their appearance than other women. McGrath has also found that after breast augmentation, women report “less embarrassment about the feature and less time invested in feeling upset about and camouflaging the feature” (3). Though she published these findings as recently as 2007, they curiously echo the 1982 ASPRS petition which called naturally small breasts “deformities”. Despite all the evidence highlighting the drawbacks of breast augmentation, two decades later elite
medical professionals within society still refuse to acknowledge the inherent dangers in the procedure, instead yielding to societal pressures and the temptation of aesthetic perfection. These professionals also claim that although there are some post-surgical complications immediately after the surgery, “women reported very high levels of satisfaction with the procedure and its psychosocial outcomes” (Figueroa, 378). Figueroa goes on to say that larger breast size was associated with being popular, sexually active, assertive, and overall more confident. In contrast, smaller breast size was associated with feeling lonely and depressed. Essentially, Figueroa and McGrath’s findings support the claim that breast augmentation leaves a positive psychological impact on the patient. On the surface, these findings seemingly support Tillich’s assertion that women are motivated to pursue their “ultimate concern” and gain a sense of fulfillment when they achieve it fully. However, these findings are not completely accurate, and these inconsistencies can be explained with a comprehensive understanding of Tillich’s argument.

In actuality, many women who undergo breast augmentation procedures do not enjoy a sense of fulfillment and are not happy. Loren Lipworth, a researcher working in the International Epidemiology Institute, has collected data that completely negates the idea that women who receive breast augmentation gain the fulfillment they so desperately seek. According to her study of a group of women who underwent breast augmentations, “135 suicides have been observed, compared with 66.9 expected” normal suicides in line with suicide rates in the general population (Lipworth, 234). David Sarwer, a clinical psychologist and professor at the University of Pennsylvania, has confirmed Lipworth’s finding that the rate of suicide is approximately doubled among women who receive breast augmentation. Further analysis of conflicting data reveals that women who electively choose breast implants do not achieve true, long lasting happiness. The physical and mental trauma that breast augmentation patients risk makes it clear that aesthetic perfection is the “ultimate concern” in these women. Why then does fulfillment of the “ultimate concern” result in suicide rather than happiness? McGrath explains “Even in the presence of scarring and capsular contracture, most patients said they were satisfied with appearance and derived psychological benefits from the surgery” (2). Lipworth agrees that patients initially feel happy by stating “women who receive breast implants used to report high levels of satisfaction with their surgery and improvements in
body image and psychological well-being” (236). Both confirm that the initial reaction of women right after implantation of cosmetic breast implants was extreme satisfaction.

Lipworth, though, goes on to explain that this happiness quickly disappears as the time passes after surgery. Lipworth states “the increased risk of suicide was not apparent until 10 years after implantation” (234). McGrath and other proponents of breast augmentation only examine the time period right after augmentation; however, in order to fully assess the impact of breast augmentation, one must look at the patient’s entire post-operative life. The entire purpose of breast implants is to provide a psychological benefit to women that will last them well past their prime years. This was the philosophy behind the 1982 ASRPS petition and McGrath’ opening statement that “physical risks are contrasted with psychosocial benefits” (1). Evidence, though, suggests that these psychosocial benefits are temporary or perhaps even non-existent. This inordinate number of suicides in the general population as well as widespread discontent several years after can be explained by applying Tillich’s concept of “idolatrous faith” to the existing paradigm.

Although aesthetic perfection is the “ultimate concern” in these women, it is not true faith and thus will not lead to happiness. According to Tillich, aesthetic perfection would be classified as “idolatrous faith”. He states that, “in true faith the ultimate concern is a concern about the truly ultimate; while in idolatrous faith preliminary, finite realities are elevated to the rank of ultimacy” (Tillich, 13). The result of idolatrous faith is very different from that of traditional faith. While traditional faith results in fulfillment, “the inescapable consequence of idolatrous faith is ‘existential disappointment’ a disappointment which penetrates into the very existence of man!” (Tillich, 13). This concept of idolatrous faith and existential disappointment lends a plausible explanation to Lipworth and Sarwer’s findings that suicide rates and dissatisfaction increased after breast augmentation. These women elevated the wrong concern, a preliminary concern, to the level of “ultimate concern” and according to Tillich they are plagued with existential disappointment – driving them to take away their own life. This existential disappointment may not necessarily culminate in suicide, but still haunts women. Su-Ying Fang, a researcher studying post operative psychological effects of breast augmentation on women in Taiwan, explains how the sacrifices patients made were not worth achieving the “ultimate concern”. Years after receiving the implants “women began to wonder if having the surgery to improve their appearance had been worthwhile
when compared with the adverse effects they experienced as a result of breast reconstruction, the possible impact on follow-up care, and the ability to detect cancer recurrence” (Fang, 6). These women are not happy, but are now left forever worrying about their health. In fact, “women expressed dissatisfaction with how their new breasts looked and felt and were surprised at the lengthy, painful, and for some, problematic recovery from surgery” (Fang, 8). The very feature these women were trying to improve is the source of disappointment after the improvement. While McGrath maintains that breast implants are a great option to improve self esteem, he does admit “events that compromised the desired outcome eroded to some extent the psychosocial benefits that women derive from breast implants” (5). His claim is that it is the negative impacts of implants, such as obscuring cancerous growth, that are the cause of some discontent. He fails to recognize that the implants themselves are still the fundamental cause of the unhappiness, as an application of Tillich’s ideas of idolatrous faith and subsequent existential disappointment clearly shows.

Not only does society influence the individuals within it, but those individuals in turn also influence the society they are in. This can be witnessed in the breast augmentation paradox as well. As the number of women who give in to societal pressures grows; their actions begin to directly influence their surrounding environment. While there has been a lot of controversy about the influence of society on individual women, there is a much smaller body of research focusing on the impact of these women on societal trends. J. Mark Ramseyer, a world renowned economist, has analyzed the healthcare system of Japan and claims it foreshadows the American healthcare system after the implementation of universal healthcare. There has been an implementation of price caps on some necessary surgeries in order to provide basic, necessary care to all individuals while saving the government the cost from unnecessary surgeries. This has divided the medical field and has profound impacts on physician distribution. According to Ramseyer,

In effect, it bifurcates the medical services industry into the covered (non-competitive; medically necessary) sector, and the non-covered (competitive; medically superfluous) sector. Within the covered sector, it suppresses prices and subsidizes demand, and physicians respond by
degrading quality and allocating service by queue. Within the non-covered sector, they allocate service by quality and price (7).

In the non-covered sector, physicians are free to charge whatever they please—thus this sector is the most lucrative and draws the top tier of physicians. In this competitive sector, the quality of care determines the price of care, and thus weeds out less competent physicians. In the non-competitive, medically necessary sector, physicians are not paid based on quality of care, but rather the quantity of patients they treat. Thus lower tier physicians move into this sector and provide suboptimal care to patients. Women seeking breast augmentation are willing to pay high prices for this elective surgery. According to Tillich’s ideas on faith, women whose “ultimate concern” is aesthetic perfection will exhaust any and all resources in order to achieve this perfection. The individual’s “ultimate concern” is driving her actions and is thus changing the entire medical field. The most talented physicians will no longer specialize in areas that will allow treatment of the general population, but will rather be sequestered and reallocated by prevailing market forces to treat a small range of patients who are willing to pay large sums of money for unnecessary surgery. These individual women are drawing away the best physicians and are having a huge impact on the medical community. By drawing away the majority of talented physicians, these women are in effect stifling medical research and thus the future quality of medical care to the general population. Thus, society’s negative impact on these women comes full circle as they are trapped by the illusion of idolatrous faith in growing numbers and end up negatively impacting society as a result.

Since the introduction of breast augmentation, there has been a large controversy about the physical and mental effects of the procedure. Biased medical groups pushed for the costly, unnecessary practice and incorrectly validated the treatment of underlying psychological issues with physical alterations. Candidates for breast augmentation face dangerous chemicals and outdated procedures all in the name of aesthetic perfection. Applying Tillich's ideas, these hurdles are justified because aesthetic perfection has reached the level of "ultimate concern" in these women. Even more disturbing is that recent findings place the suicide rate of the breast augmentation population at double the normal rate. Tillich describes how the elevation of a preliminary concern, such as aesthetic perfection, to the level of "ultimate concern" can only lead to "existential disappointment", thus perfectly describing the current breast augmentation paradox-
suicide after improvement. Further analysis of his works reveals how faith in fulfillment of the "ultimate concern" is an internal process. Therefore it may be too late to assist women who have already elevated aesthetic perfection to the level of "ultimate concern". As a community, we must prevent the elevation of aesthetic perfection - the preliminary concern - to "ultimate concern". Empirical data suggests that this elevation is influenced by external factors created by society; therefore, actions taken to change the current societal pressures can be effective in saving women of future generations. The cynical may question why any attention should be given to these few, misguided, delusional women. If for no other ethical reason, it should be noted that the actions of these handful of women have a significant impact on the lives of the general population. The medical community and in essence society as a whole is forced to change to accommodate the radical women created by society itself.

Bibliography


GLOBAL CONCERNS
In the twentieth century, an unprecedented high number of Korean international students were enrolled in the United States from elementary school to college. English became a crucial school subject for low and higher education institutions in Korea. Furthermore, fluent usage of English became an extremely important qualification for many job applicants. Many Korean middle school students, thus, poured all their effort to enter foreign language high schools, such as Yongin or Daewon foreign language high school, so that they can apply for Ivy League schools in the United States. As soon as Korean international students started to study abroad, they experienced a time of linguistic tumult. During the time of linguistic identity tumult, Korean international students in the United States started to question the ways in which they identified in Korea, because they were largely influenced by American mass media. During the cross-cultural adjustment period for Korean international students, did American movies and Korean movies motivate Korean international students to adopt American socio-cultural values, and remind them of Korean cultures and customs, respectively? Do Korean international students create
unique forms of linguistic identity and a distinguishable form of English during this cross-cultural transient state? I define Korean international students as Koreans who were born and raised in Korea for at least ten years before they came to the United States. Also, I define the active time of linguistic identity tumult as the period happens from Korean students enter the United States School to five years. Particularly, I decided to focus on Korean international students who lived in the United States from one to five years. Many authors claim that Korean international students tend to be Americanized instead of being bicultural because of the strong effects of the American mass media. These authors argue that exposure to American mass media encourages Korean international students to accept American social values and weakens Korean cultural identity. However, other authors claim that Korean cultural values within the minds of Korean international students influence how they interpret American social values in American mass media. Many authors also note that Korean international students in the United States confront conflicts between two different cultures, especially in terms of language. After a cross-cultural adjustment period, Korean international students are more bicultural than they are simply products of American socio-cultural assimilation because they keep many Korean values, and in part this dual culture is expressed through a distinctive form of English speaking.

In “Beyond Yellow English: Toward a Linguistic Anthropology of Asian Pacific America,” Adrienne Lo and Angela Reyes, as editors of this book, present two relevant articles about Korean students. Sung-Yu Park, in “Illegitimate Speakers of English,” states that Korean international students “strongly identified with Korean national identity—that is, they would self-identify as ‘Koreans’ and not as ‘Americans’—though at the same time, they had much familiarity with mainstream American lifestyles as well” (Park 199). Korean students, thus, maintain Korean identity along with American lifestyles. Juyoung Song, in “Bilingual Creativity and Self-Negotiation,” claims that Korean American students “create new hybrid practices in collaboration with one another, redefining their social relationships through the dynamic means of language” (Song 228). Because two cultures coexist in Korean students minds, two languages from two different cultures conflict each other.

In contrast to Park and Song from previous two articles, Seung-jun Moon and Cheong Yi Park, in “Media Effects of Acculturation and Biculturalism: A Case Study of
Korean Immigrants in Los Angeles’ Koreatown,” argues that “even though Korean immigrants are frequently exposed to both American and Korean mass media, they tend to be Americanized instead of bicultural due to the strong effects of the American media” (Moon and Park 319). However, during the time of linguistic identity tumult, entrenched Korean culture and custom prevent complete Americanization. Negative stereotypes about Asians shown in early Hollywood movies also motivate Korean international students to accomplish a sense of independence rather than become completely Americanized. In addition, watching Korean movies, which emphasize Korean social cultures, reinforce Korean culture to these students. The pervasive American mass media in the United States, indeed, imposes Korean students with American socio-cultural values and norms. Even though the influence of American mass media, particularly American movies, is overwhelming, Korean students construct distinguishable styles of English as they confront and overcome the time of linguistic identity tumult. This can be seen in the survey I conducted at Rutgers University. The subjects of the survey were Korean international students in Rutgers University who have lived the United States for one to five years; there were eleven participants. I distributed the survey questions to these participants through e-mail; then, they sent e-mails with the answered survey questions to me. The survey is comprised of six questions about the relationships among watching American and Korean movies, forming linguistic identity, and learning English.

Before examining the ways in which Korean international students remain bicultural rather than completely Americanized, it is important to understand the language ideologies of global English, the power of movies to Korean international students, and the cultural value of language. Many Korean students are motivated to study abroad to the United States, because of distinctive language ideologies in Korea. In “Language Ideology and Identity in Transnational Space: Globalization, Migration, and Bilingualism among Korean Families in the USA,” Juyoung Song claimed that there are “two language ideologies of global English: (1) language as marketable commodity; and (2) language for cosmopolitan membership” (Song 23). Specifically, every multinational corporation use English in business transactions. Also, numerous countries in Asia and Europe began to adopt English as their second language, so English became one of crucial subjects in academic institutes in many countries. During their leisure time, many Korean international students watch both Korean and American movies for language and
educational reasons. In contrast to many other media, movies are not only visual but also auditory experience. Also, movies have the power to illustrate particular socio-cultural values. In “Bilingual Creativity and Self-Negotiation,” Song quotes Ochs when he writes about the concept of language as a “system of symbolic resources designed for the production and interpretation of social and intellectual activities” (Song 216). For Korean international students, a language, either Korean or English, is not only the representation of a particular culture, but also the tool to communicate with other students.

When Korean students watch Disney movies such as The Little Mermaid, Beauty and the Beast, and Aladdin, they interpret American socio-cultural values depicted on Disney movies based on entrenched Korean cultural experience. In “Marry the Prince or Stay with Family-That is the Question: A Perspective of Young Korean Immigrant Girls on Disney Marriages in the United States,” Lena Lee explores how young Korean immigrant girls aged five to eight, interpret the American concept of marriages depicted on Disney movies in the United States. Korean immigrant girls’ interpretations of marriage are greatly influenced by Korean culture and norms. Lee states that leaving “their parents, who have sacrificed their whole lives for these girls, might constitute for them an act of betrayal and immortality, and guilt” (Lee 44). Because the independence aspect of marriage is less praised in Korean than in America, Korean immigrant girls and American girls understand the concept of marriages in Disney movies differently. Similarly, in “Boys Like Smart Girls More Than Pretty Girls: Young Korean Immigrant Girls’ Understanding of Romantic Love in American Popular Culture,” Lee explores how young immigrant children interpret romantic love in Disney movies. For Korean immigrant girls aged five to eight, Korean culture provided a framework in understanding romantic love within Disney movies. Because educational level has been regarded to be crucial factor in one’s success in Korea, Korean girls “considered inner beauty more essential for romantic love than many other characteristics” including physical attractiveness (Lee 92). All in all, Korean international students become bicultural, in that Korean socio-cultural values affect Korean newcomers to the United States in understanding American cultural values depicted on American popular culture. Park, the author of “Illegitimate Speakers of English,” states that a Korean student’s “position can be understood only with reference to the in-between-ness they hold at the intersection of Korea and the United States” (Park 210). The entrenched Korean cultural values within

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the minds of Korean international students show that the experienced Korean cultural values cannot be eliminated by the powerful influence of American mass media, in particular, American movies.

Negative stereotypes of Asians shown in early Hollywood movies motivate Korean students to develop a sense of independence. In “Asian culture and Asian American Identities in the Television and Film Industries of the United States,” Hemant Shah presents four main stereotypes of Asian American: “Yellow Peril,” “Dragon Lady,” “Charlie Chan,” and “Lotus Blossom” depicted on Hollywood movies. Particularly, according to Shah, “Yellow Peril” is the depiction of Asian men “as menacing, predatory, and lusting after white women” (Shah 4). Also, “Dragon Lady” is the depiction of Asian women “as diabolical, sneaky, and mean, but with the added characteristics of being sexually alluring and sophisticated and determined to seduce and corrupt white men” (Shah 4). Nowadays, there are still implicit biases toward Asian Americans within Hollywood movies. Korean students maintain Korean culture within them in response to stereotypes and biases presented in Hollywood movies rather than just acknowledge such biases. For instance, “Yellow Peril” and “Dragon Lady” have been recently depicted on the television programs in 1990’s Martial Law and Ally McBeal, respectively. These films and programs show many negative stereotypes toward Asians living in the United States, which were depicted on many early Hollywood movies such as Broken Blossoms, The Cheat, and Thief of Baghda. Asian film companies including James B. Leong Productions and Haworth Productions aimed to depict the actual images of Asians living in the United States without the influence of these negative stereotypes. Park, the author of “Illegitimate Speakers of English,” claims that Korean students showed defiant attitudes against such prejudices “in order to make sense of their positions within U.S. society and culture and to reposition themselves within a network of new relational opposition” (Park 209). Collectively, many groups of Asians in the United States, including Korean students, strongly responded to the prejudices shown in American mass media so that they maintained their mother cultures in their minds.

Watching Korean movies, particularly Take Off, motivates Korean students to remember Korean socio-cultural terms and triggers patriotism. The background setting of Take Off, the Korean movie based on true story, is a small Korean town undergoing a large-scale construction in preparation for Winter Olympics bids in 1996. In this movie, a
Korean local committee receives a report that they have insufficient athletes to compete for Winter Olympics bids. So, they decided to make a ski jump team; former American Junior alpine athlete Bob, an adoptee who came to Korea in search of his mother, became the leader of the ski jump team. For Korean students, watching Bob learning how to use Korean words such as **dongssang** and **sensagnim** to refer to junior colleagues and ski jump coach, respectively, reminds of Korean socio-cultural terms. Korean has nominal substitutes such as **dongssang** or **sensagnim** to replace second-person pronoun, “these nominal forms encode social relationships between people in terms of age, social status, kinship, and in- and out-groupness” (Song 215). Nominal substitutes are the specific terms to describe social relationships between speaker and listener. Koreans more often use nominal substitutes than second-person pronoun to indicate other person, because they regard the direct description of other person using second-person pronoun to be impolite. Hearing such Korean nominal substitute words within Korean movies can activate “Korean side” of Korean international students. Also, as they use such Korean nominal substitute words each other in the United States, they begin to feel strong attachment to Korean cultural values. Yoon Chul, the author of “Unheralded Athletes Prove Korean’s Potential at Games,” pointed out that “Korean ski jumpers athletes of interest in Korea after a movie about the sport, ‘Take Off,’ became popular” (Chul). Considering that this movie is about national ski jump team in Winter Olympics, watching this movie inspires patriotism in the minds of Korean international students. To sum up, watching Korean movies like *Take off* helps Korean international students to retain Korean socio-cultural values in spite of the strong American mass media influence.

Watching Korean movies, specifically **Haeundae**, stimulates Korean students to conjure up a famous tourist region and a regional dialect in Korea, which trigger “Korean sides” in the minds of Korean students. Haeundae is the popular vacation place on the East Sea coast in one of Korean cities, Pusan. In this movie, Haeundae is hit by the mega-tsunami similar to the 2003 tsunami in Indian Ocean. Haeundae is one of three best beaches in Korea so that many Korean vacationers visit Haeundae for their summer vacations. As Korean students watch **Haeundae**, they think of their experiences related to Haeundae and Pusan, and can maintain their valuable memories related to Korea within their minds. Also, Pusan citizens use one of Korean dialects. In “**KOREA ENTERS THE BIG POOL** – Director and lead actress of Haeundae: The Deadly Tsunami reveal fond
memories of filming” written by Tan Kee Yun, Ji-Won, who is a Korean actress in *Haeundae*, says that in order to “perfect the Pusan dialect that my character spoke, I took language lessons for three months” (Yun). As Korean students hear Pusan dialect while watching *Haeundae*, their “Korean side” is instigated by the words of Pusan dialect in that they feel comfort and intimacy as they hear such words during the cross-cultural period. Song, the author of “Bilingual Creativity and Self-Negotiation,” states that “addressing is not only a linguistic practice that referentially denotes persons in discourse but also a social practice that indexes and makes relevant implicit rules and frames for individuals” (Song 214). Thus, as Korean students hear Pusan dialect address terms, they adopt Korean socio-cultural values imposed in those address terms at the same time.

As Korean students are largely affected by American popular culture presented in terms of English, Korean students undergo language shock in that they are not accustomed to using English for their everyday life. Park, the author of “Illegitimate Speakers of English,” states that Korean students often “renounces legitimate speakership of the language by acknowledging one’s incompetence” (Park 197). In many cases, a Korean student, at first, are not confident in learning English in that many Korean students regard legitimate speakership of English as both pretentious and showing off in Korea. In addition, Korean international students often create the mixed language of Korean and English, so-called Konglish. Among Koreans in both Korea and the United States, the term Konglish refers to the hybrid language that is almost impossible to comprehend. For example, cellular phone in English is “hand phone” in Konglish, window shopping is “eye shopping,” rear-view mirror is “back mirror,” mechanical pencil is “sharp pencil,” cheating is “cunning.” Leanne Hinton, the author of “Trading Tongues” in “Beyond Yellow English : Toward a Linguistic Anthropology of Asian Pacific America,” mentioned that, for Korean students, “this mixed language actually becomes the main language used” for their daily life (Hinton 338). Because English beginners are incapable of making long sentences, Konglish is often shown as short combinations of words. Also, even though English beginners create long sentences, such sentences often have syntax problems in that the orders of the parts of speech such as subject, object, and verb in Korean and English are different. In Korean, the order of the parts of speech starts from subject to object to verb; in English, the order of the parts of speech starts from subject to verb to object. Specifically, in Konglish, Korean and
English words are organized in awkward patterns so that a person cannot communicate with others using Konglish.

As one of the participants of the survey I conducted in Rutgers University, the participant three said that “my main difficulty learning English during the cross-cultural adjustment period in the United States was learning the rules of English syntax, the word orders.” For Korean students, this time of linguistic identity tumult is enhanced by the conflicts between Korean and American cultures in that they become bicultural. According to the participant seven from the survey on Korean international students in Rutgers University, “watching Korean movies while I was staying in Korean helped me become more fitted as Korean; watching American movies helped me to build ‘American sides’ of myself.” A language, indeed, is a layout for a particular culture. Especially, for Korean international students in the United States, English is a bridge to communicate with other students and their teachers. Also, Korean students experience American cultures in terms of English. During the time of linguistic identity tumult, watching American movies actually helps Korean students to learn English more effectively. As Korean students overcome the time of linguistic identity tumult, they develop unique styles of practicing English.

For Korean students in the United States, the difficulties in learning English are derived from the differences between Korean and English languages. Most prominently, the usage of first-person and second-person pronouns in English and Korean is different. In “Personal Pronouns in English and Korean Texts: A Corpus-Based Study in Terms of Textual Interaction,” Chul-Kyu Kim studied the comparison of usage of first-person and second-person pronouns in Korean and English in both Korean and English newspapers. According to his study, English first-person and second-person pronouns are about 3.8 times more used than those of Korean. Kim claims that the result of this study is affected by Korean socio-cultural context, specifically, “the preference for indirectness in text as a means of building harmonious relation with the reader and the collectivistic tendency in the Korean society” (Kim 2086). Because Koreans regard the practice of indirectness in language as the basis of politeness, they use less direct first-person and second-person pronouns. Song, the author of “Bilingual Creativity and Self-Negotiation,” states that “Korean does not have a neutral second-person form such as the English ‘you,’ nor a second-person pronoun that refers to a person regarded as socially superior” (Song 215).
Instead of neutral second-person term, there is a extensive usage of nominal substitutes for social positions and kinship terms. This explains the dominance use of wuli, we, than tansin, you, in Korean, because Koreans prefer to use nominal substitutes rather than second-person pronouns. Because of this difference between Korean and English, Korean students experience the discrepancy between their Korean identity and English identity in that language is the layout of both cultural values and constituents’ identities. Watching various kinds of American movies including Disney and Hollywood movies helps Korean students to learn the English usage of first-person and second-person pronouns. While watching American movies, Korean students can physically experience the wide usage of first-person and second-person English pronouns through both sounds and images. As they remain bicultural to both Korean and American cultures, they formulate a distinctive style of English because of Korean cultural experiences in the past. This style of English is the tendency to use many descriptive words such as adjectives or adverbs to define the relationship between the speaker and the listener more explicitly.

Also, the phonologies of Korean and English are different. In “Characteristics of Korean Phonology: Review, Tutorial, and Case Studies of Korean Children Speaking English,” Seunghee Ha, Cynthia Johnson, and David Kuehn explore the characteristics of Korean phonology in contrast to those of English phonology. Specifically, because the vowel systems of English and Korean are different, Korean students have “difficulties with perception and production of some English vowels including /I/, /e/, and /æ/” (Ha, Johnson, and Kuehn 176). Moreover, the “English fricative and affricate consonants /f/, /v/, /z/, /ʃ/, /ʒ/, /tʃ/, /ɹ/ do not exist in Korean” (Ha, Johnson, and Kuehn 176).

Particularly, according to the participant one from the survey on Korean international students in Rutgers University, “the prominent linguistic difference between Korean and English lies in the English alphabet which consists of twenty-one consonants and five vowels, whereas the Korean ‘Hangul’ consists of sixteen consonants and six vowels.” Thus, Korean students not only cannot discern these kinds of sounds, but also have hard time pronouncing them. For these Korean students, watching movies such as Disney or Hollywood movies can provide opportunities to learn how to distinguish and pronounce English specific consonants and vowels in that they can be more exposed to English speaking environment. So, watching numerous kinds of American movies can help to adopt English fricative and affricate consonants and vowels so that they can both discern
and pronounce the sounds in conversations with others. According to the participant four from the survey on Korean international students in Rutgers University, “watching American movies helped me to learn English more effectively, because I was able to both identify and learn English specific intonations and pronunciations by watching American movies.” As Korean students remain bicultural to both Korean and American culture, two languages, the layouts of two cultures, influence each other constantly. Because of this interference, Korean students speaking English tend to show stopping during conversation, which is known as phonological interference pattern. This phonological interference pattern is one of unique characteristics of Korean students’ usage of English.

All in all, Korean students become bicultural rather than unquestionably adopt American socio-cultural values imposed within American movies, because they maintain many experienced Korean cultures. As Korea students become bicultural, they develop a distinctive form of English speaking. Particularly, more use of adjectives and adverbs to define the speaker and listener relationship clearly and phonological interference pattern are two prominent styles of Korean students’ English speaking. These distinguishable styles in English speaking of Korean international students and difficulties in learning English speaking result from the substantial differences between Korean and English languages. During the cross-cultural adjustment period, for Korean international students, watching either Korean or American movies play significant roles in reshaping their linguistic identities. Watching Korean movies stimulates “Korean sides” of Korean international students; watching American movies constructs “American sides” of them. In terms of learning English, watching American movies helped Korean international students to overcome the significant differences between Korean and English languages. Through watching American movies such as Disney or Hollywood movies, these Korean students are able to learn the English usages of first-person and second-person pronouns and learn the English intonations and pronunciations that do not exist in Korean. Considering that a language is the layout of a particular culture, watching Korean or American movies enhances the severity of the time of linguistic identity tumult. But, watching American movies also helps Korean international students to overcome their linguistic identity tumults by providing opportunities to learn the English usage of first-person and second-person pronouns and English specific pronunciations.
Bibliography


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Survey Questions

1. How does watching Korean movies influence in your linguistic identity formation during cross-cultural adjustment period in the United States?

2. How does watching American movies influence in your linguistic identity formation during cross-cultural adjustment period in the United States?

3. What do you think are the main differences between Korean and English?

4. What was the difficulty learning English during cross-cultural adjustment in the United States?

5. Do you think watching American movies helped learning English during cross-cultural adjustment period in the United States? (Yes/No)

6. If you answered (Yes) in question 5, how does watching American movies help learning English in that watching movie is both visual and auditory experiences?
Peak Oil: Implications of a Global Dependency
Kyle Walsh

"...when 300 million people do unconscious behaviors, then it can add up to a catastrophic consequence that nobody wants, and no one intended." - Chris Jordan

Introduction/Thesis

As just one nation in the world, the United States consumes nearly 30,000 barrels of oil every two minutes. Every two minutes. By the time you have read the first few paragraphs of this paper, that incredible amount of oil has just been consumed to form gasoline, petrochemicals, heating oil, and a vast number of other petroleum-based products. These figures are certainly well beyond the human capacity to comprehend, forcing the implications of this consumption to the background of our minds. Our worldwide mass-consumption of crude oil has inherent detrimental implications that have the potential to dismantle the lifestyle we have grown accustomed to, and according to peak oil theory, these unintended consequences are likely to occur sooner than we anticipated.

The theory of peak oil is that the productive capacity of an oil well follows a bell-shaped curve, accounting for intense investment after discovery, eventually peaking, after which the productive capability of the well diminishes exponentially. This theory can be applied not only to a single well, but to any agglomeration of oil-rich regions as well, even the global oil supply. The potentiality of a global peak in oil is, in time, a certainty, given any rate of continual consumption. Across the world we already meet the requirement of continual consumption, yet what of time? Are the economic, geological, and geopolitical trends of the past decade any indicator of the occurrence of a global peak in oil production? And what recent events might support this theory? A global peak in oil consumption succeeding a productive peak may be within sight for our younger generations. The crude oil market trends of the past decade, in tandem with recent international geopolitical developments, are a direct indicator of a pending peak in petroleum consumption, and a subsequent energy crisis.

Theoretical Frame

A topic concerning fossil fuel resources, and more specifically, oil, encompasses a vast amount of information for a product that has only been commoditized during the past century. Due to the vast array of implications crude oil imposes on global society, a focus on economic, cultural, and geopolitical factors surrounding the production and
consumption of oil are key to understanding peak oil theory. Each of these factors compose the foundation for support or dismissal of Hubbert’s peak as applied to world reserves. Those who support this theory present economic data involving crude price fluctuations and figures showing diminishing extraction rates in our major oil producing regions. These figures promote the belief that peak oil theory is accurate, geographically malleable, and can be applied to world oil reserves. Furthermore, these claims assert that a peak in oil consumption may happen within the next century, and possibly within the half-century. The views are held by such scholars and figureheads as Dr. David Goodstein of the California Institute of Technology and former case officer with the Central Intelligence Agency, Robert Baer, each with differing experiences that have shaped a similar view. This view is that the global oil market is ecologically, economically, and politically unsustainable.

Yet this is certainly not the only viewpoint held for this theoretical debate surrounding peak oil theory. Certain counter arguments do exist to denounce peak oil theory, including the claim that supporters of the theory do not adequately account for market effect on resource consumption. This is commonly argued by the idea that any market failure surrounding oil scarcity will find remedy in replacement fuel sources and infrastructural technologies. Further comment made on peak oil theory revolves around the idea that production will simply be increased worldwide to accommodate for scarcity in our current reserves. This increase in production could be accounted for by unconventional extraction methods, including oil shale and offshore drilling, as well as opening up currently unavailable drilling sites, such as the Arctic National Wildlife Refuge. Many supporters of these efforts to criticize peak oil theory and extend the age of oil include national and multinational corporations involved directly in the oil market or indirectly as energy or defense firms, among other examples. Each of the previously mentioned authors discuss these complications with their respective analyses, and more sources include that of reports released by Exxon Mobil Corporation and scholars supported by the United States Department of Energy. These viewpoints raise valid and well-developed complications to peak oil theory and the potentiality for a global peak in oil production in the near future.
Approach/Methodology

The focus of this study is the application of peak oil theory to world oil reserves based on the physical, economic, and geopolitical trends of oil consumption and production in the past decade. While oil has existed for centuries in various understandings and uses by mankind, for the purposes of this study of peak oil, only publications and data from 1950 to present will be applicable, as it is a study of commodity oil, not the basic resource itself. Geographically, the implications of peak oil theory are on a global scale, yet it is still necessary to focus on certain key regions. Primarily, these regions will include the United States, China, and the Middle East, each of which have an essential role of influence in the global oil market due to their political, cultural, and demographical characteristics. Sources for this study include literature, statistical data, corporate and scientific reports, and periodical publications.

A combined analysis of the literature used in this study of peak oil theory provides a broad scope to the intricacies of oil consumption. A trend analysis will attempt to determine whether one can apply these findings to a peak in oil consumption, and a pending international catastrophe. Aiding the literary accounts is a wealth of statistical data and reports offering recent oil production and consumption information, as well as projections for these figures. Researching this question will require the application of production and consumption trends to international conflictual developments, and a subsequent analysis of that relationship to peak oil theory. For example, is might be possible that Thomas Friedman’s first law of petropolitics can coincide with an alteration in worldwide consumption. This process will allow for a specific, in depth study of peak oil theory as applied to the global oil supply.

Findings

Based on recent production trends, crude oil resources are likely to reach a productive peak within the next decade. Production figures are potentially the most important data in relation to peak oil theory. This data offers information on how much oil a given well, nation, entity of fields, or company, is producing and how much is actually estimated to remain underground at the sites in question. Data involving the prediction of remaining reserves is unsurprisingly variable between sources. Among oil companies, oil producing nations, and independent audits, both specific and global reserves can vary greatly in prediction. Robert Baer expresses this variation in his recent
publication, The Devil We Know. “Based on inflated industry and company estimates, the remaining proven reserves worldwide amount to 1.255 trillion barrels. But if we go by actual production, according to the respected, independent Energy Watch Group, oil reserves are in fact closer to 854 billion barrels” (Baer p.141). He goes on to discuss Middle Eastern reserves. “Officially they’re put at 677 billion barrels. But calculated on the basis of production, they’re more like 362 barrels…” (Baer p.141). Not only does this account explain the variation of reserve estimates, it also brings into question the reliability of production data. In 2004, Royal Dutch Shell announced that it had been systematically overestimating its proven reserves by 20%, or nearly 4.35 billion barrels, and its stock was immediately dropped. According to an Associated Press article published on March 9, 2004, the corporation had been warned of its reserve estimates being “inconsistent with U.S. Securities and Exchange Commission guidelines” (AP 2004). This type of unreliability, stemming from a major oil company, questions our ability to project the longevity of our current oil supply. Furthermore, within regulations for the Organization of the Petroleum Exporting Countries (OPEC), the higher the claimed reserves of an OPEC nation, the more that nation is permitted to extract (Baer, 140). It is therefore possible that if fears of scarcity were to occur for any OPEC nation, a subsequent overestimate would provide more immediate income for that country at an unsustainable rate of production.

In terms of productive capacity in relation to peak oil theory, the United States offers itself as an excellent case study. Peak oil theory states that a peak in production levels will occur after a period of intensive, exponential development and extraction. After this peak, production will then, theoretically, taper off at a rate of exponential decline. Shell Oil Company Geoscientist M. King Hubbert, who developed the theory of peak oil, accurately applied his theory to the United States, which experienced peak oil in 1970. The following graph is Hubbert’s prediction.

*Figure 21* - Ultimate United States crude oil production based on assumed initial reserves of 150 and 200 billion barrels.
for the United States, published in June of 1956 by the American Petroleum Institute. This graph shows his production projection through 2050, and as you can see, he predicts that the United States will reach a peak in oil production at or around the year 1970.

Using a data sheet offered by the Energy Information Administration (EIA) of the United States Department of Energy (USDOE), the next graph displays actual United States crude oil production through 2008. This second graph clearly displays a peak in production at the year 1970, and continues a declining pattern only slightly higher than Hubbert’s upper level estimate. A recent EIA report, titled U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Proved Reserves, 2008, confirms continually declining crude oil reserves in the United States. “…even though discoveries of crude oil rose for the third year in a row, proved reserves of crude oil fell by more than 10 percent” (EIA, 2009). This report is based on data collected throughout 2008 on crude oil discoveries, reserves, and production, and provides evidence of a continuation of the pattern seen in the graph above.

The data and trends above provide a case study of Hubbert’s theory of peak oil. With this understanding of the theory, it is possible to graphically analyze global production and potential productive indicators of a pending global peak in productive capacity, based on world production data. Once again, the EIA provides a wealth of data regarding oil production, consumption, demand, and many other compiled statistics. Below, a graph illustrates worldwide oil production and demand from 1973 to 2009.
World production and demand have recently peaked, with global demand showing a more prominent peak in 2007 at an average of 86,138 thousand barrels per day. Global demand decreased by roughly two thousand barrels per day, annually, in 2009, and continues to decline today. Yet more importantly than recent demand trends, global production has been faltering since the late-1990’s, and has never adequately met demand since 1980. While global production has marginally increased over time, it has failed to meet global demand during the past decade, when demand was growing exponentially.

One might expect that the wealthiest oil-nations and oil companies would certainly have taken advantage of this increase in demand. If they had, there would be a surge in production and reserves at a slight delay to the demand curve. The world either cannot, or will not, produce at an adequate capacity related to demand. Where these production figures begin to factor in with peak oil theory is at a key aspect of the theory, well explained by David Goodstein in Out of Gas. “Given that worldwide demand will continue to increase, as it has for well over a century, Hubbert’s followers expect the crisis to occur when the peak is reached, rather than when the last drop is pumped” (Goodstein, p.30). If the recent fault in global productive capacity is any indicator of a peak, or near peak, in the production of conventional oil, there may very well be a global crisis in oil supplies in the near future. The reasoning behind a peak crisis, opposed to a depletion crisis, is that after an oil peak, production declines exponentially while demand continues at a steady or increasing rate. As seen
above, production already fails to meet demand, so it can be understood that there would be serious trouble should the gap between production and demand continue to grow.

Worldwide consumption of crude oil has continually increased throughout the past decade, presenting a seemingly endless international trend. Even as oil consumption dropped recently in the United States and other most developed countries, total consumption worldwide has continued to increase, and an intermediate demand projection offered in the EIA Long-term Global Oil Scenario expects demand to rise continuously throughout the century. As just one nation, the United States accounts for ~20% of the world’s total energy consumption, based on 2006 EIA figures. Equally important to this mass-consumption is the increasing demand for oil in developing nations. China has been importing oil at an increasing rate of 6% each year during the past decade. Specifically, Chinese imports of Saudi crude have also increased, notably during the 2009 recession, when China’s Saudi imports doubled to over one million barrels per day, accounting for nearly a quarter of the nation’s oil imports (Mouawad, 2010). This underscores an ongoing expectation that China, among other developing nations, will continue to increase its demand for crude oil, stretching markets from major exporters like Saudi Arabia. According to a March 2010 article by New York Times journalist Jad Mouawad, “Only two years ago, consumers were clamoring for more supplies, OPEC producers were straining to increase their output, and prices were rising to record levels”. This article references the fact that OPEC producers could not adequately meet the intense demand resulting from the economic prosperity seen during the mid-part of the previous decade, and its subsequent effect on crude prices. If our global consumption increases, as it likely will, we are likely to run out of oil significantly earlier than predicted.

The global pattern of petroleum consumption during the past decade is unsurprising, and expresses the previously stated claims that the world is consuming oil at a continually increasing rate. Below, a graph of worldwide petroleum consumption is displayed, where the green line
expresses total world consumption, and the blue line expresses the total consumption of countries in the Organization for Economic Co-operation and Development (OECD). This organization includes thirty most-developed countries and developing countries, including the United States, the United Kingdom, Germany, and Australia. Notably, it does not include China, a developing nation that is vastly expanding its economic influence and consumption of natural resources. After a period of decline ending in 1983, our global consumption of petroleum has increased exponentially, and has only seen a slight drop during 2008, likely due to the onset of a global economic recession. The importance of the developing world is extremely notable during the past decade. Starting around the year 1999, consumption from OECD countries began to level out, yet at the same time global consumption experienced an exponential increase in the rate of consumption that continued through 2007. This is a direct indicator of the influence that developing nations, especially China, have on the global consumption of petroleum. This graph is attributable as well to the theory of peak oil as related to a consumption peak. It seems that for a number of years, OECD nations have been consuming less and less oil, and during the past decade there has been no marginal increase in consumption by these
nations. Consumption as a world total also appears to be decreasing since 2007, and regardless of Chinese consumption trends, if all thirty OECD nations continue to consume less petroleum, the net affect will likely be a reduction in global consumption.

In analyzing the above data, the trends of oil consumption and production appear to be potential indicators of a pending oil peak. Production levels have been roughly evening out during the past decade, with consumption levels for major oil-importing nations mirroring this trend at a slight delay. This is a pattern to be expected at a period of peak oil. As productive capacity levels out, consumption would follow at a slight delay, as stockpiles are depleted. Peak oil is, in other words, an indication that we have consumed half or nearly half of our easily recoverable oil supplies. According to data sited separately by Baer and Goodstein, this may in fact be the situation we face.

Goodstein offers statistics on the total amount of oil available since its discovery. “Over the period 1995-2000 the United States Geological Survey (USGS) made an exhaustive study of worldwide oil supplies. The resulting report concludes that, with 95 percent certainty, there was the equivalent of at least two trillion barrels when we started pumping” (Goodstein p. 29). Baer discusses the similar statistic for remaining reserves as of 2008. “Based on inflated industry and company estimates, the remaining proven reserves worldwide amount to 1.255 trillion barrels. But if we go by actual production, according to the respected, independent Energy Watch Group, oil reserves in fact are closer to 854 billion barrels” (Baer, p. 141). The average of the two figures cited by Baer for remaining proven reserves is 1.055 trillion barrels, which is essentially half of the USGS estimated two billion barrels (95% certainty). So based on our production and consumption trends since the first well drilled for commodity oil, we have consumed close to half of all available reserves. According to the theory of peak oil, a crisis in oil resource use will occur not at the point of depletion, but rather at the point where half of the resource reserves have been consumed. Once again, the raw data regarding our global crude oil market points to a pending oil peak, which, if peak oil theory is entirely accurate, transcends to a pending crisis in the supply of this vital resource.

Crude oil prices are not an indicator of oil scarcity, and more likely fuel our mass-consumption of the resource, rather than indicate its limits. Applying price trends to the theory of peak oil, while helpful in accessing a peak in resource consumption, is a more ambiguous process than that of analyzing production and consumption trends. Oil prices
are manipulated through multiple avenues in the international market. Prices vary from nation to nation and, often times, the price of a barrel of oil may reflect nothing beyond its commoditization. Prices are not a direct reflector of scarcity, or any other market or non-market trend, in the crude oil market (Adelman, 1986). Gasoline prices offer a good illustration of this reality. For the average consumer, barrel prices might seem to affect gasoline prices linearly. Yet as Goodstein clearly states, the prices paid by Americans to fill up are significantly lower than international gasoline costs. “…visitors from Europe are usually astonished to discover that gasoline is just about the cheapest liquid you can buy in the United States. Two dollars a gallon amounts to fifty cents a liter” (Goodstein, p. 46). The United States pays a subsidized price on the crude oil commodity, as a result of deals made between major oil-producing nations and members of every level of government. Nowhere is this more prominent than the relationship between Washington and Saudi Arabia. Money and political power has been shifted between the two nations for decades to provide the United States with cheap, endlessly supplied crude oil (Baer, 2003). So it is essentially impossible to impose any specific trend on oil prices, as there are too many factors that alter them. Whether it be back-room dealings, the addition of individually owned crude stockpiles into the market, or simply the cost of different transportation options for the commodity, prices never come from one single source, and therefore are not a direct indication of scarcity or a global peak.

While crude oil prices do not directly reference immediate or pending scarcity or peak production, there are some who believe that cheap oil is attributable in a separate way to peak oil theory. The idea is not dissimilar to the tragedy of the commons. Where there is a publicly available commodity, a common resource, that is essential to the livelihood of all peoples, the use of that resource will expand exponentially, regardless of cost. Now add to this situation an increasing yet never unattainable price, and you have even more intense production and consumption of that resource. Again, Goodstein discusses this phenomenon in relation to the cheap price paid by Americans for crude oil and gasoline. “One consequence is that we Americans, with 5 percent of the world’s population, consume 25 percent of the world’s oil. Cheap gasoline is not the solution; it’s a big part of the problem” (Goodstein, p. 46). Goodstein clearly displays the relatedness of over consumption to price. The graph below represents global crude oil consumption per yearly average price from 1998 to 2008. The yearly average price during this time
period expanded exponentially from ~$11 dollars per barrel in 1998 to ~$95 dollars per barrel in 2008. When the price was low, averaging $11.82 dollars per barrel in 1998, the consumption to price ratio was very high. While both price and consumption of crude oil increased during the past decade, the ratio shows a downward trend in the amount of oil consumed at increasing prices. This is in direct support of Goodstein’s theory that cheap oil is, in fact, a contributor to over consumption of a resource. Regardless of how crude oil prices are derived, it can be surmised that the lower the cost, the more we will consume. So even if at the onset of a oil crisis we were to implement more efficient, cost-saving technologies for our oil-driven products, it is likely we will not conserve this vital resource, but rather deplete it at an increasing rate.

**Significance of Findings**

Crude oil is everywhere, whether as a raw resource or as a refined and developed product that might not resemble its origin at all. It is a commodity that has been used to its complete and full potential by humankind, and is vital to all people of any socio-economic status in any nation. The findings of this study on the application of peak oil theory to global reserves have shown that there is, at minimum, a pending peak in crude oil within the next half century, yet depending on the production and development patterns during the next few years, this peak could be experienced as soon as ten to fifteen years from present. Production is faltering while consumption and demand rise exponentially. Even if there were one hundred years of comfortable consumption of crude oil remaining, it is still a finite resource, one that will, given time and continuous
consumption, be depleted. According to peak oil theory, a crisis will occur when we reach a peak in oil production, or rather, when we have consumed half of all the oil available for extraction; and we are very close to doing just that. So while our remaining 1 trillion barrels of oil seems like an incredible amount of oil, an amount that could not possibly translate to a crisis, at the present rate of consumption that amount would be depleted by the year 2050, and our world economy, wholly reliant on crude oil, would crash well before that time. If you are twenty years of age in 2010, you, your children, and your grandchildren will face the consequences of a global peak in oil resources, even based on the highest of total remaining reserve estimates.

There are certainly alternative oil reserves that can be researched and tapped throughout the world, yet these unconventional methods, including oil shale and deep sea (off-shore) drilling, come at higher production costs, and will contribute significant economic strain. Furthermore, common sense deters the notion that the discovery of a large-scale oil field, one to rival the Saudi Ghawar Field (the world’s largest oil reserve), will eliminate all worry of an oil crisis. The discovery of such a field would take years of investment and development to reach commodity production capability. All the while the world is consuming existing reserves, and by the time the field is in full production, it may only add enough oil to offset consumption trends during the years it took to develop that field. Another noteworthy complication in the multiple techniques of averting a global oil crisis is the increase in the efficiency of our crude usage, especially that of gasoline. Hybrid cars, for example, appear to use less gasoline due to their increased efficiency and partial deference of energy to battery power. This leads to an example of Jevons Paradox. When a consumer experiences a decrease in the cost of a convenient and vital task of everyday life, one can surmise that the occurrence and intensity of that behavior will increase for a multitude of reasons. If the use of one’s car is less expensive than that of using public transportation, or simply not going somewhere, then the car will be used. This is a basic economic situation; as price goes down, due to a number of factors, quantity demanded (consumption), goes up, and when the product is gasoline the rate of depletion of worldwide crude oil supplies also goes up. These few examples are certainly not exhaustive of all situations and complications involving the production and consumption of crude oil, but serve to display the vast complexity surrounding any solution to an oil crisis.
What is most striking in the discussion of an oil crisis as a result of a global peak in oil reserves is that such a crisis would affect all aspects of our entire global social, economic, cultural, and political network. Everything consumed, whether by necessity or conspicuously, has a footprint in oil. All the petrochemicals used on a day to day basis in all trades are a direct product of crude oil, and no matter how local a product may be, it still contains an oil footprint stemming from the transportation sector. Even the infrastructure of renewable energy systems has likely been created and implemented using crude oil products and fuels. Moreover, the geopolitical effects of a global oil crisis would be vast. There is a direct correlation between the oil reserves a nation contains and its freedom rating as applied by the international organization Freedom House. Saudi Arabia, Iraq, Iran, United Arab Emirates, Qatar, Russia, Libya, and other major oil producing countries are all labeled not free. Other major exporters, including Ecuador and Venezuela, are labeled “partially free”. New York Times columnist Thomas L. Friedman dubs this trend the “first law of petropolitics”; freedom has an inverse relationship to the price of oil. This trend not only has the potential to cause irreconcilable rifts in our geopolitical environment, it may already have done so to a certain degree.

It is both unsurprising and astonishing that the entire world balances upon the most unstable regions which control our oil reserves. The Middle East, arguably the most corrupt, war torn, and tactically imperative region in the world, contains ~54% of the remaining claimed proven reserves worldwide. An example of the instability of our crude oil market is found in the Strait of Hormuz, a narrow waterway between the Persian Gulf and the Gulf of Oman through which all major international crude oil supplies flow. Iran, an increasingly powerful, self-interested, and potentially hostile nation, borders this waterway, and given reason has the ability to shut down the Strait, and the global economy, at will (Baer, 2008). Perhaps it is of no surprise that the developed nations of the world have political and military assets in nearly every country surrounding the Strait of Hormuz and Iran. For decades, the developed world has had this foothold in the Middle East, protecting the continued flow of crude oil across the Atlantic and north to Europe, offering direct evidence of the regions strategic importance. Additionally, as the price of oil has risen in the past decade, so has the number and intensity of conflicts occurring in and related to the Middle East, including 9/11, the Second Gulf War, the war
in Afghanistan, the 2006 Lebanon War, an emerging Iranian superpower, and increasing cultural and political instability in Saudi Arabia. These are all examples of major geopolitical conflicts and developments during the past decade. During this same time, the Middle East, notably Saudi Arabia, has failed to meet market demand for oil, while crude prices rose from ~$11 dollars per barrel to ~$95 dollars per barrel. These three trends: Increasing conflict, declining crude oil production rates, and increasing crude oil market prices, are a perfect storm for the occurrence of a peak in conventional petroleum resources, and as supplies become increasingly scarce, these trends are likely to become more prevalent as well.

A crisis in oil reserves, based on current consumption rates and the absence of viable commoditized alternatives, is inevitable. Based on the geopolitical and market trends of the past decade, a global peak in oil reserves is probable well within the next few decades, possibly sooner. Worldwide reliance on a finite resource can have no different outcome. A comfortable lifestyle of conspicuous consumption surrounded by oil is enjoyed by millions throughout the developed world and continues to spread into certain developing countries as well. It is the resource that provides each of us with the necessities in life, and it is impossible to completely avoid its footprint. A crisis in oil reserves as a result of an oil peak will be globally catastrophic, and the consequences of our mass-consumption of a finite resource will not differentiate between peoples or nations, race or religion, rich or poor. This non-differentiation, due to the unavoidable use of crude oil, will distribute the consequences of an oil crisis across all peoples worldwide, with implications across the economic, political, and social structures throughout our world.

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